

CENSUS OF INDIA 1961

VOLUME IX

MADRAS

PART X-(I)

MADRAS CITY REPORT

P. K. NAMBIAR I.A.S.

of the Indian Administrative Service

Superintendent of Census Operations, Madras and Pondicherry.

&

S. M. SULAIMAN I.A.S

of the Indian Administrative Service

Deputy Superintendent of Census Operations, Madras.

1973



CENSUS OF INDIA 1961

VOLUME IX

MADRAS

PART X-(I)

MADRAS CITY REPORT

P. K. NAMBIAR

of the Indian Administrative Service

Superintendent of Census Operations, Madras and Pondicherry.

&

S. M. SULAIMAN

of the Indian Administrative Service

Deputy Superintendent of Census Operations, Madras.

1973

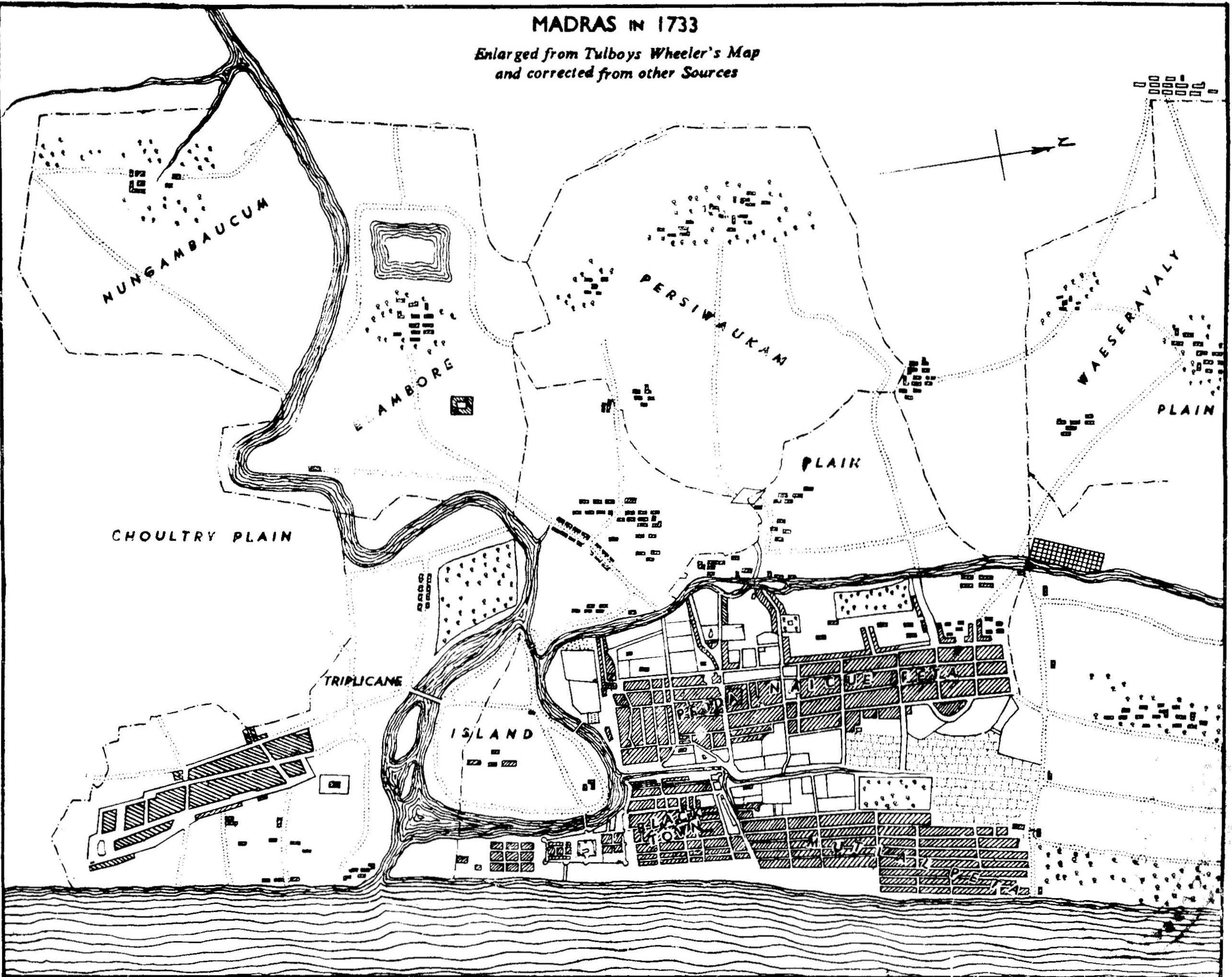
CENSUS OF INDIA 1961

(Census Report - Vol. No. IX will relate to Madras only. Under this series will be issued the following publications)

*	Part	I-A (i)	...	General Report (Chapters I to VII)
*	Part	I-A (ii)	...	General Report (Chapters VIII to XIV)
*	Part	I-B (i)	...	Demography and Vital Statistics (Report)
*		I-B (ii)	...	Demography and Vital Statistics (Tables)
*		I-C	...	Subsidiary Tables
*	Part	II-A	...	General Population Tables
*		II-B (i)	...	General Economic Tables (B-I to B-IV)
*		II-B (ii)	...	General Economic Tables (B-V to B-IX)
*		II-C-I	...	Cultural Tables
*		II-C-II (i)	...	Migration Tables (D-I to D-V)
*		II-C-II (ii)	...	Migration Tables (D-VI)
*	Part	III	...	Household Economic Tables
*	Part	IV-A	....	Report on Housing and Establishments
*		IV-B	...	Housing and Establishment Tables
*	Part	V-A-(i)	...	Scheduled Castes and Tribes (Report and Tables SCT-I and SCT-II)
*	Part	V-A (ii)	...	Scheduled Castes and Tribes (Tables SCT-III to SCT-IX and Special Tables)
*		V-B (i)	...	Ethnographic Notes on Scheduled Tribes
*		V-C	...	Todas
		V-D	...	Ethnographic Notes on Scheduled Castes]
		V-E	...	Ethnographic Notes on Denotified and Nomadic tribes
*	Part	VI	...	Village Survey Monographs (40 Nos.)
*	Part	VII-A	....	Crafts and Artisans (9 Nos.)
*		VII-B	...	Fairs and Festivals
*	Part	VIII-A	...	Administration Report-Enumeration } For official use only
*	Part	VIII-B	....	Administration Report-Tabulation } For official use only
*	Part	IX	....	Atlas of the Madras State
†	Part	X-(i)	...	Madras City (Report)
*		X-(ii)	...	Madras City (Special Migration Tables)
*		X-(iii)	...	Madras City (Census Tables & Primary Census Abstract)
*			....	District Census Handbooks on twelve districts
*	Part	XI	...	Reports on special Studies
*		A	...	Handlooms in Madras State
*		B	...	Food Habits in Madras State
*		C	...	Slums of Madras City
*		D	...	Temples of Madras State (7 volumes)
*		E	...	Physically Handicapped of Madras State
*		F	...	Family Planning Attitudes: A Survey
	Part	XII	...	Languages of Madras State

* Already published † Present Volume

CONTENTS


MADRAS IN 1733
Enlarged from Tulboys Wheeler's Map
and corrected from other Sources
NUNGAMBAUCUM
AMBORE
PERSIWAUKAM
WAESERAVALY
PLAIN
PLAIK
N
CHOULTRY PLAIN
TRIPLICANE
ISLAND
Prepared at the Office of the Director of Census, Tamil Nadu, Madras.

PREFACE

As part of the 1961 Census, big and growing Cities with a population of more than one million have been studied in detail. Madras is one of the seven such cities in India, others being in order of population Bombay, Calcutta, Delhi, Ahmedabad, Hyderabad and Bangalore. Three volumes have been devoted for Madras City. The present volume, the first in the series deals with such topics like the origin and growth of the city, its history, its demographic characteristics, its municipal administration and the like. The second and third volumes that have already been released contain demographic tables relating to Madras City - the second volume containing Migration tables pertaining to the City and the third volume containing General Census Tables and the Primary Census Abstract. These volumes correspond to the District Census Handbook publication for each district.

It is hoped that this volume along with the companion volumes will be useful to those who are interested in the study of this metropolis.

K. Chockalingam, I.A.S.
Director of Census operations
Tamil Nadu and Pondicherry.

I wish to place on record my appreciation of the able assistance given by the following members of my staff in the preparation and presentation of this volume.

SRI N. RAMA RAO	...	*Assistant Director of Census Operations*
SRI D. RANGANATHAN	...	*Tabulation Officer*
SRI T. S. RAJARAM	...	*Tabulation Officer*
SRI R. NARAYANAN	...	*Tabulation Officer*
SRI T. S. NAGARAJAN	...	*Research Assistant*
SRI T. BALAKRISHNA KURUP	...	*Statistical Assistant*
SRI P. VENUGOPALAN	...	*Computor*
SRI V. VENKATRAO	....	*Lower Division Clerk*
SRI N. NALINASEKARAN	....	*Lower Division Clerk*
SRI N. D. RAJAN	...	*Photographer*
SRI A. RAJAMANI	...	*Artist.*

K. CHOCKALINGAM
Director of Census Operations.

CHAPTER I

ORIGIN AND HISTORY

The study on the growth and decline of cities has always proved fascinating. It reveals the political and cultural history of nations. In history many cities have grown, flourished and completely disappeared. In India, Ayodhya, Takshasila, Nalanda, Harappa, Mohenjodaro, Bijapur, Vijayanagaram. Korkai and Gangaikondacholapuram are typical examples. But no detailed historical survey of their rise and fall has so far been made. Whatever be the continuity in the growth of the cities, a definite departure has been made from the normal pattern during the British period. The growth of the three great cities of India, viz., Calcutta, Bombay and Madras was intimately linked with the growth of British power in India. They have survived the end of the British rule and continue to grow in importance. It is my purpose in this volume to make a study of the City of Madras which was the chief centre from which British rule expanded in India Though its importance was lost to Calcutta by the later half of the 18th century, it continued to play a significant role in the development of British institutions and British administration.

The antiquity of the City

The City of Madras symbolises the rise of British power in South India. For three centuries it has grown. Today it has become the fourth highly populated city in India. From the point of view of density it is next only to Calcutta. It has played a notable part in shaping the political thinking in this country. The sprawling present day territorial limits of the city existed in the shape of scattered villages for centuries before the advent of the British. They perhaps existed from the beginning of the Christian Era. Among the villages of the early Madras, Mylapore and Triplicane are well known. The antiquity of Mylapore is evident from the fact that the port of Mylapore, sometimes written 'Maliyapur' appears to be known to the Grecio-Roman Geographer Ptolemy of the 2nd Century A.D. as Mylarphon, a corruption of the Tamil name 'Mallarpu' which was its original name in Tamil. History has recorded that South India had a flourishing trade with the Roman Empire at that time and received considerable quantities of gold in exchange for products like pepper and fine cloth. A Roman factory has been excavated near Pondicherry and Roman coins found in Mylapore which perhaps may well have been an important trade centre in those days. Actually Mylapore is situated 30 miles to the north of Mahabalipuram, the port of the Pallavas and 40 miles west of their capital Kancheepuram.

Besides, Mylapore has been from time immemorial famous in Hindu Religious lore. It is the place where goddess Parvathi, Consort of Lord Siva is said to have performed penance having taken the form of a peacock called 'Mayil' in Tamil. From this, Mylapore is said to have derived its name. The place is noted for the famous Saivaite shrine of Sri Kapaleeswarar, one of the ancient temples of South India visited by the great saint Thirugnanasambandar. Tradition has it that the original shrine of Sri Kapaleeswarar was somewhere near the sea, but was washed away by sea erosion and the present temple was built later. This is evident from the Tamil poem;

*"ஊர்த்திரை வேலை உலாவும் உயிர் மயிலைக்
கார் திரு சோலைக் கபாலிச்சுவரம் அமர்ந்தான்"
(திருஞான சம்பந்தர் — திருமயிலைப் பிரபந்தம்)*

Mylapore is equally important for Vaishnavites as Peyalwar, one of the earlier Vaishnavite saints was born in a well near Madhavaperumal temple in a street in Mylapore, which, by a strange series of changes not uncommon in the city, now bears the name of Arundel Street. Both this Alwar and other earlier Alwars, like Poygai Alwar and Budhathalwar mention both Mylapore and Triplicane in their hymns giving thus a clear indication of the antiquity of the Vishnu shrines in both the places. To his sacred memory the Peyalwar Temple stands at Mylapore. The other

Vaishnavite temples of ancient lore are the Kesava Perumal Temple and the Madhava Perumal Temple. Mylapore is also mentioned in the Tamil classic 'Nalayira Divya Prabandam'.

It is also said that the great saint Thiruvalluvar was either born or had lived in Mylapore. Research is undertaken by Tamil scholars in this line and if it is proved that Thiruvalluvar was either born or had lived in Mylapore, it will enhance the greatness of Mylapore and thereby the greatness of the Metropolis of Madras as having served as the abode of the great guide of humanity who gave to the world 'Thirukkural' the universal code of human conduct.

Mylapore was also considered as a great centre of commerce and was the sea-port of the Pallavas (575–582. A. D). This was as important as Mamallapuram port (Mahabalipuram.) It is probable that much sea-borne commerce was carried on in this port as can be testified from the treatise, 'Nandikkalambakam'. The Pallava Ruler, Nandi Varman III, bore the title of 'Mylai Kavalan' or the protector of Mylapore.

Similarly the history of Triplicane has some interest. In the earlier times it was a small hamlet attached to the town of Mylapore and is recorded in the 'Divya Prabandam' of the Vaishnava Alwars as 'Mayilaittiruvallikeni'. It remained as a suburb of Mylapore until it shot into prominence in the times of the Pallavas who were the founders of the present Parthasarathy shrine. Triplicane is the corrupt form of 'Tiruvellikeni' or 'Tiru alli keni' meaning the sacred 'Lily Tank'. Opposite to it is the great Vaishnavite temple dedicated to Sri Parthasarathy Swamy. It is an ancient temple and an inscription of Nandivarman, the Pallava king, who ruled from 779 to 830 A.D. can be found on it. The inscription itself dated 791 to 792 A.D., refers to a gift of land to the temple. Nandivarman II or Pallava Mallan had lavishly contributed for the building and maintenance of the temple. Besides, this temple has been made famous in one of the hymns of the early Alwars:

"............................. நீளோதம்
வந்தலைக்கும் மாமயிலை மாவல்லிக்கேணியான்"
(திருமழிசையாழ்வார் –நான்முகன் திருவந்தாதி)

Besides Mylapore and Triplicane, a number of villages existed in early Madras, the names of which ended in 'Pakkam', which in Tamil is the specific name of a sea-side village, e.g. Selpakkam. (modern Chepauk), Nungambakkam, Purasapakkam, etc. As Dr. S. Krishnaswamy Aiyangar puts it, "So what we now call Madras is certainly no new foundation." and we might almost say that nobody knows its foundation.

The greatness of ancient Madras, is mostly religious. We find in Madras old temples signifying the antiquity of the place. But the foundation of the modern city was laid in the 17th century by the establishment of the Fort by the East India Company. Around the Fort has developed the imposing grandeur known as the Metropolis of Madras, the important Administrative Centre in South India during British days. But the British have departed on 15th August, 1947. Madras has remained as a standing monument of what the British have done to India.

Acquisition by the British

The present site in which the city of Madras is located was acquired by the British in 1639. It was the first territorial acquisition of the British in India. No doubt British had "built factories in other places earlier. Three of their major earliest foundations were Calcutta, Bombay and Madras, Madras being the oldest. The Fort St. George was built before Bombay was ceded or Calcutta founded. The City was a fortified stronghold for a considerable time. It grew rapidly, soon after its foundation. It became the chief factory of the British on the Coromandel coast and the headquarters of the Company. An Italian traveller Mr. Mannucci who visited in 1686 has testified to the remarkable progress made by the British Traders. By about the end of the 17th Century, it became the Chief British Settlement in India and principal port for European and Indian goods. The political importance of Madras, however, got reduced as a result of the Regulating Act of 1773. The British found that Calcutta was more favourable for their expansion and that Bombay and Calcutta have greater commercial and industrial importance". Actually the city was described by Kipling in 19th century as 'withered beldame brooding on ancient fame'.

During the 19th century, Madras had also its share of growth. Many important educational

institutions were founded in Madras. Its University was established in 1857, the High Court was created by a Charter in 1862. It has to be conceded that in the later stages, Madras has played only a subordinate role in the growth of the British power in India.

Beginning of the settlement at Fort St. George

The English East India Company was established in the year 1600. About the middle of the century two settlements were founded one at Surat on the Western coast of the Indian subcontinent and the other at Bantam in Java Island. The trading centre at Surat was under the protection of Moghul Governors of Gujarat. On the East coast, the Chief port was Masulipatam which was subordinate sometimes to Surat, and sometimes to Bantam. Masulipatam was part of the Golkonda kingdom, one of the five independent Muslim Kingdoms in Deccan. This settlement was founded in 1611. No territory was ceded to them but they were permitted to build a Factory which would help their trade in Golkonda. The trade was more in the nature of import and export of goods between the English East India Company and Great Britain.

A rival of the British East India Company was the Dutch East India Company who established a settlement at Pulicat besides a Factory at Masulipatam. Pulicat lay at a distance of 160 miles south of Masulipatam in the Hindu Vijayanagar Kingdom. In the battle of Talikota, the power of Vijayanagar was destroyed in 1565 by the combined effort of five Mohammedan kings of Deccan.

The Rajah fled and took refuge in Chandragiri, 75 miles north-west of Madras. He continued to maintain some loose sovereignty on several compact areas in the south through the agency of Nayaks. He built a palace for himself in Chandragiri.

The settlement at Pulicat was highly advantageous to the Dutch East India Company and the English could not compete with them. Further they could not prosper at Masulipatam because of exactions practised by the Officers of the Golkonda Kingdom. By 1626, the English East India Company acquired a small place at Armagon or Durgarayapatnam, 35 miles north of Pulicat. A small fort and a factory were established at this place. It had some shortlived prosperity because of differences between the East India Company and Golkonda regime. In 1632, however, the primary agency of the Company was re-established at Masulipatam and the English withdrew from Armagon. The English also tried to settle at a place called Peddapalli situated at the mouth of a small channel of the Krishna delta. But the climate was deadly and after a few years the Company abandoned this settlement. Thus valiant efforts were made by the English East India Company to find a suitable location on the Coromandel coast which failed.

The Madras site was located by Francis Day who was the member of the Masulipatam Council and had acted as chief of the Armagon factory. Coromandel coast was in those days under the nominal rule of the Rajah of Chandragiri. His local chiefs known as Nayaks, ruled over the different districts almost independently. One Nayak gave the Dutch Company Pulicat. Damarla Venkatapathy was another Nayak who controlled the entire coastal country from Pulicat in the north to the Portuguese settlement at Santhome which is now a part of the City of Madras. He was also called Lord General Carnatica and Grand Vizier to the King. He had his headquarters at Wandiwash. His brother Ayyappa Nayak resided at Poonamallee, a few miles west of Madras to look after the coastal region. It was Ayyappa Nayak who induced Francis Day to establish an English settlement at Madras. After getting permission from the headquarters at Masulipatam they reached Madraspatnam situated three miles north of Santhome and after personal inspection he found the place suitable. One main fact which weighed with Mr. Day was that calicos woven at Madraspatnam were much cheaper than those at Armagon. The British had always an eye for trade. Accordingly, he obtained the grant from the emperor Pedda Venkata for territory and privileges and also a licence to build a fort and found a settlement. Mr. Day who returned to Masulipatam delivered his report together with the grant of Nayak to Mr. Andrew Cogan, the lawful agent of the East India Company. It was endorsed by Mr. Cogan. The firman (grant) dated 22nd July 1639 is reproduced below, the copies of which are even now preserved.

'Firman granted by Demela Vintatedro Nugaę

unto Mr. Francis Day, Chiefe for the English in Armagon, in behalfe of the Honble Company for their tradeing and fortifieing at Medraspatam, to this effect as followeth:—

'Whereas Mr. Francis Day, Captain of the English at Armagon, upon great hopes by reason of our promises often made unto him, hadth repaired to our port of Medraspatam and had personall Conference with us in behalfe of the Company of that Nation, concerning their trading in our territories and friendly comerce with our subjects; wee, out of our spetiall Love and favour to the English, doe grant unto the said Captain, or whomsoever shall bee deputed to Initiate the affairs of that Company, by vertue of this firman, Power to direct and order the building of a fort and Castle in or about Medraspatam, as they shall thinke most convenient, the charges whereof, untill fully and wholly finished, to bee defrayed by us, but then to bee repaied when the said English shall first make their enterance to take possession thereof. And to make more full Expression of our effection to the English Nation, wee Doe Confirme unto the 'said Mr Francis Day, or whatsoever other Substitutes or Agents for that Company, full power and authority to governe and dispose of the Government of Medraspatam for the terme and space of two yeares Next Insueing after they shall be seated there and possest of the said fortifications, and for the future by an Equall Division to receive halfe the Custom and revenews of that port.

'Moreover, Whatsoever goods or Merchandize the English Company shall either Import or Export, forasmuch as Concernes the dutyes and Customs of Medraspatam, they shall, not only for the Prementioned two years in which they Injoy the Government, but for ever after, the Custom free. Yett if they shall Transport or bring any commodities up into, or through my Countray, then shall they pay halfe the dutyes that other Merchants pay, whether they buy or sell the said Commodities either in my Dominions or in those of any other Nague whatsoever.

'Also that the said English Company shall perpetually Injoy the privileges of mintag(e) without paying any Dewes or dutyes whatsoever, more than the ordinary wages or hire unto those that shall Quoyne the moneyes.

'If the English shall Accquaint us before they deliver out any koneys to the Merchants, Painters, Weavers, & c., which are or shall hereafter reside in our permentioned port or territories, and take our word for their sufficiency and honest dealeing then doe wee promise, in case those people faile in their performances, to make good to the English all such sumes of money as shall remaine on their Accounts, or Else deliver them their persons, if they shalbe found in any part of my territories.

'That whatsoever provisions the English shall buy in my Countrey, either for their fort or ships, they shall not be liable to pay any Custom or Dutyes for the same.

'And if any shipp or vessell belonging to the English (or to any other Countray whatsoever which tradeth or shall come to trade at that port) shall by misadventure suffer shippwrack and bee driven upon any part of my territories, they shall have restitution upon Demand of whatsoever can been found remaining of the said wrack.' (dated the 22nd July, 1639).

The English were happy about Day's action and resolved to send him again to Madras pending approval by the superior Presidency of Bantam (in Java). It would be noted that when Madras was founded, the control of the Coromandel coast was vested in Java. Day and Cogan accompanied by a few writers and factors, 25 European soldiers and a few other Hindu artificers, left for Madraspatnam on 20th February, 1640. This marked the first actual settlement of the English in Madras and also in India.

A piece of waste land lying between the river Cooum almost at the point it enters the sea and another river known as Egmore river, was the first bit of land given to East India Company. The island formed by the two rivers and the sea was considered unfit for any useful purpose and was described popularly by the name 'Narimedu', a Tamil term meaning jackal mound. On this piece of waste land was founded the Fort St. George which is even today, the seat of the Government. Further light on this settlement is revealed in a letter that the Agent and Council wrote to the Company in London on 25th October 1639. The relevant part of the letter is reproduced below: "They are fair privileges and (it) may be questioned why he should make us these fair offers. It is answered by himself. Firstly he

desires his country may flourish and grow rich which conceives it will by drawing merchants to him, secondly he desires (for his money) good horses from Persia; thirdly that yearly upon our ships he may send a servant into the Bay of Bengal to buy him hawks, apes, parrots and such like bables, and that he shall send a vessel of his own to Persia a man of ours may proceed upon her. Lastly the fort, being made substantial and strong may be able to defend his person on occasion against insulting neighbours. If intend continues this State as we are confident you will (pepper trade is of small value especially where you shall buy all for ready moneys) the above said offers are not to be refused." It was exactly for business considerations that the Fort St. George was founded. It was named after England's patron saint. In honour of the father of the local Nayak called Chennappa the settlement, as distinct from the town of Madras was named Chennappattanam, but today the name Chennappattanam is applied to the whole town. Actually the Portuguese had a prosperous trade in Santhome. They invited Mr. Day to settle there, but he preferred an independent establishment north of Santhome. By the autumn of the year 1640, 300 or 400 families of weavers and others attracted by the exemption in taxes for a period of thirty years had settled round the fort which consisted of a tower or house enclosed by a rectangular wall, 400 yards long and 100 yards wide with bastions at the four corners. Thus in 1641, Fort St. George became the headquarters of English East India Company on the east coast. By 1658 Bantam in Java and stations in Bengal were put under the control of Fort St. George.

Early topography

The topography of the region in which Madras was founded can be described as follows. The two streams flowing from the west and north had a common outlet to the sea at a place about a mile south of Madraspatam. They are the Triplicane river (now popularly known as Cooum river) and the Elambore river (Egmore river). The former river flowed in a winding course through the villages, Chetput, Nungambakkam and Triplicane. The latter river flowed parallel to the coast at a distance of one mile along the western side of Madraspatam, till it reached the site of the present General Hospital. It turned southward near the sea for about three fourth of a mile and met Triplicane river at its outlet. The first bend was within 300 yards of the Triplicane river. A cut was made at the point between the two streams sometime before the end of the 17th century. The low lying tract between the two rivers was known as the island as early as 1643 and has this name till today. Due to the formation of a wide backwater by the streams it was only during rainy season there was any direct link with the sea. The site chosen for the Fort St. George was a point on surf banks of the sand that lay between the Elambore river and the sea, 3/4th of a mile north of the outlet and just south of Madras. It has been inferred from an old Portuguese inscription unearthed during the excavation of the foundations for a new chapel of St. Lajarus at Mylapore that a wealthy Portuguese family by name Madra must have settled down somewhere near the present Assumption Church which bears two dates viz., 1640 and 1857. Perhaps he gave the name to the locality.

Another version is as follows: Rural villages of Madraspatam were colonised by fisherfolk from the Parish of the Madre-de-peus church of the Mother of God. The emigrant fisherfolk called their village by the name of their Parish and the name was eventually corrupted into Madras.

Another theory is that Madraspatam was known as Chennapatnam, in memory of Chennappa, father of Damarla Venkatapathy Nayak. Some historians considered it was derived from the term Madrasa a Hindi word meaning educational Institution on the assumption that one might have existed at that place. It is also possible that the Church of St. Mary (Madras de Dens) might have existed at Madras prior to 1640 founded by the Portuguese of Santhome and might have given the name to the place. Curious resemblance can also be found between the English Settlement of Madraspatam and the Dutch factory of Sadraspatnam at the outlet of the Palar river and the northern settlement of Durgaroyapatnam (Armagon). These theories about the original names are of interest, but nothing definite can be stated as to why this name was given to this place.

In the original grant of the English East India Company, the extent of land was not specified.

The extent can, however, be inferred from the 1733 map which is reproduced in this volume. It shows the boundaries of the adjoining village.

The Fort was lined out nearly square in plan with a bastion at each angle. Its dimensions were 108 yards from north to south and 100 yards from east to west (outside measurement). The factory-house in the centre of the square was placed diagonally to the square so that each face of the house fronted and defended the gorge of a bastion. It took nearly 14 years for the construction of the fort. Buildings and streets sprang up nearby and constituted the White Town. The Fort was built with borrowed money and Mr. Day held personal responsibility for the payment of loan with interest.

I give below the description of the province, Tondaimandalam, in which Madraspatam was located: It was an area lying between Pennar River of Nellore and the Pennar river of South Arcot. These streams rising almost together initially flow north and south and then eastward to the sea. The capital of the province was Conjeevaram. The province was divided into 24 kottams and each of these had a central stronghold. The kottams are similar to the present day districts and they were sub-divided into 'nadus' similar to taluks. The kottams comprised normally 1 to 5 nadus. Madraspatam lay in the Nayar Nadu of a kottam by name Puzhel or Pullel. The fort of this kottam was built in the Palli village at the Red Hills. Five nadus, viz., Nayar, Ambattur, Agudi, Attur and Eghumur were in this kottam. Besides Madraspatam, Nayar Nadu had other hamlets also. In the documents of subsequent periods, mention is made of other places like Comerpett, Muthialpet and Attapollam, all parts of George Town as well as Irukunnam which lay north-east of Vepery. Except Muthialpet, the other names are unknown to the present day Madras. There was also a group of villages outside the boundaries of Madraspatam and this comprises Tandore on the North and Perambore to the north-west, Vepery and Purasawalkam on the west, Egmore and Nungambakkam on the south-west and Triplicane on the south. All these areas are now included in the City of Madras. All the villages except Triplicane and the hamlet of Pooddopauk were Shrotriem* villages where mirasi right** existed. Chintadripet, in the west was not founded until 18th century.

The following facts are, therefore, established on the basis of records :

1. That the village called Madraspatam existed under that name prior to the settlement by Cogan and Day.
2. Within a few years of the founding of Fort St. George, the new town which had grown up around the Fort was commonly known as Chinapatam.
3. That the place Madraspatam was recognised by Vijayanagar in 1645 and by Golkonda in 1672 as distinct from the new town.
4. While the official centre of the settlement was designated, Fort St. George, the British applied the name Madraspatam to the combined town.

Further study would show that the site of Chinapatam was that of modern Fort St. George, that the original village of Madraspatam lay north of and proximate to Chinapatam. The earliest plan of the Fort which was published by Dr. Fryer after his visit in 1673 shows Madras the Indian town with flat houses immediately to the north of the European walled town. Hence the site of the villages of Madraspatam is probably to be located on the northern esplanade of modern Fort St. George. The intervening space between Chinapatam and Madraspatam was rapidly built up so that the two places became virtually one town. The English preferred Madraspatam with which they had from the first been familiar while the Indians adopted the name Chinapatam. The dimensions of the territory in British possession could never have exceeded 3.25 miles from north to south and about a mile from east to west. The Fort St. George was situated on the southern extremity of the strip. When Fort St. George was built, nearby Triplicane village (known as Tiruvallikkeni) had an ancient temple, now known as Parthasarathy swamy temple. Till 1642 no records existed to show that Madras had any other temple. The temple called great Pagoda in Black Town, one

---

*Shrotriem is an assignment of land or revenue to a Brahman

**Hereditary right to possession or occupation of land

in the suburb of Muthialpetta and two in Peddanaickenpetta are marked in Thomas Pitt's map of 1710. The first temple occupied a part of present High Court of Madras in 1757. It was demolished for military reasons. In 1766, the temples of Sri Chenna Kesavaperumal and Chenna Mallikeswarar dedicated to Vishnu and Siva were built in Peddanaickenpetta.

Travellers' account

Travellers who visited Madras during 1658-1673 have left some interesting accounts. Wouter (gautier) Schouten, a surgeon of the Dutch service travelled in India during 1658 and 1665. He has given a description of Fort St. George. Dominic Navarette, a Spanish priest has visited Madras in 1678. Thomas Bowery in 1669 has given another brief description. According to him there were not less than 40,000 men, women and children who resided in and about Fort paying customs for all sorts of goods purchased and sold. Dr. John Fryer's account of Madras has been considered as the best during the period. He visited Madras in 1673. According to him, the streets were swept and kept clean with mansions of "no extraordinary height". He estimated the number of British subjects as 300 who were mainly Protestants. Madras had long streets and choultries as places of justice. The native City north of the fort was divided from the Christian town by a wide street. This street was known as bazaar.

Santhome

Santhome which is now part of Madras was called Mylapore and the original name of the Portuguese settlement was Santhome de Meliapor. Santhome is associated with St. Thomas who is said to have suffered martyrdom at St. Thomas Mount, a hill within 8 miles off Madras. It is believed that he had been buried at Santhome where his tomb is still shown to his devotees. Luz Church is west of the Cathedral of St. Thomas in Santhome at a distance of one mile. The fort of Santhome was an ancient structure. The Portuguese settlement at Santhome declined in strength and it fell to Golkonda in May 1662. The French ousted them in 1672. The French occupation lasted only for two years from June, 1673. Santhome was blockaded and attacked by the combined strength of Muslims and Dutch until it was surrendered to Golkonda king by the Dutch in 1674. In 1675 the fort was demolished with the assistance of Dutch and English. It became part of Madras in 1749.

Triplicane

The village known for its famous Sri Parthasarathy Swamy temple lies south of Madras between Santhome and Fort St. George. The limits of this village embrace a portion of the Island. The 'cowle' issued by Neknam Khan's successor, Musa Khan to the British mentions this village. It would appear that this village was under British control even earlier than this period. Thus Triplicane was treated as part of Madras before 1672.

Streynsham Master who became the President in 1678 negotiated with the King of Golkonda for renting of the outlying regions of Santhome, Egmore and Tiruvattore. A force of the militia was established in Madras. Inside the Fort, St. Mary's Church was erected and several improvements were made. The important office of the Merchant was as old as the settlement. The first occupant of the office was Seshadri Nayak who was superseded by Venkata.

Expansion of the settlement

Though Madras was treated to be a trading centre, the political changes in South India had direct effect on the fortunes of the English in Madras. The Golkonda was conquered by the Moghuls in October 1687. Firmans were issued by the Moghul Emperor granting the rights of the English Company in Madras. In 1690 General Zulfikar Khan was sent to fight the Marathas in Gingee. He applied to Fort St. George for war materials. In return for the English assistance, a cowle was issued confirming Company privileges of grants of the English East India Company for the Forts and Factories at Chinna patam, the factories at Masulipatam, Vizagapatam, and the settlements and factories at Tegnapatam (Fort St. David), Islambad (Cuddalore) and Mahmud Bandar (Porto Novo). The Mogul prince also sanctioned the English freedom to coin rupees with the King's stamp at Madras. In September 1690 the English purchased for about 30,000 pagodas the Tegnapatam fort with its guns, buildings as well as all grounds

woods and rivers around the said fort within the random shot of a great gun.

In 1693 a 'Perwanna' was received from Nawab granting the towns Tandore (Tondiarpet), Purasawalkam and Egmore to the Company. Lying in between Purasawalkam on the north and west, Egmore on the south and Peddanayakkapettah on the east was Vepery which belonged to the Mogul Government. Owing to the hostile attitude of the local Nawab the Company had to strengthen its force, in Fort St. George.

Pitt's eventful administration

Historic occasion was in 1698 when Thomas Pitt became the Governor of Madras and governed for eleven years. This period witnessed remarkable development of trade and increase in wealth. The important events were the permanent fortification of Black Town, blockade of Madras and other settlements of the Company by Daud Khan and its repulsion and the acquisition of additional suburban villages.

The permanent fortification of Black Town was begun in 1700 and completed in 1707. The rampart was 17 feet thick with brick on both sides. The rampart was paved at the top to carry guns. Its length was 1,500 yards and possessed flanking works at intervals. The rampart extended along the north and west sides of the town. The Black Town was further fortified through the funds raised from the inhabitants of the area. The defence works undertaken by Pitt, besides Black Town wall were the construction of a low-level gun platform before the Sea-Gate, at the beginning of the small fort which was later developed into 'Egmore Redoubt'.

The villages of Egmore and Purasawalkam and Tondiarpet were formed out to Serappa, the chief merchant of the Company. On the death of Emperor Aurangazeb in 1707, Shah Alam became his successor and on his advice the Company applied to the emperor for confirmation of their privileges. The grant of five villages was made as a free gift from 5th October 1708, Viz., Trivatore, Nungambakkam, Vasalavada, Gatawauk and Satangadu. Of these five places Trivatore was the town, and Satangadu and Gatawauk were under that town. Vasalavada was under Perambur and Nungambakkam under Egmore. The new places were called 'the five new villages' while Egmore, Purasawalkam and Tondiarpet were the 'three old towns', or with Triplicane 'four old towns.'

During Pitt's regime, trade flourished. Preparation as well as sale of arrack, betel, tobacco and ganja were the good sources of revenue for the Company.

Salmon's description of Madras City

The description of Madras City as given by Thomas Salmon will be of interest. It is given below:

'Fort St. George of Madrass. Madrass, or Fort St. George, as it is generally called from the English Fort there, stands about four miles to the northward of St. Thomas, in 13 degrees, some odd minutes latitude, and 80 degrees of longitude.

'The fort is a regular square, about a hundred yards on each side, with four bastions built with what they call iron stone, being of the colour of unwrought iron and very rough on the outside like honeycomb. There is no ditch about the fort, and the walls are arched and hollow within, so that I question if they are cannon proof. It has two gates, one to the east and the other to the west. The western gate which looks towards the land is pretty large; and here the main guard is kept, the soldiers of the guard lying on the right and left of it under the wall which, being hollow, serves them instead of a guard house. The east gate towards the sea is but small, and guarded only with a file of masqueteers. In the middle of the fort stands the Governor's house, in which also are apartments for the Company's servants; it is a handsome, lofty, square stone building; the first rooms are ascended by ten or twelve steps, and from thence another pair of stairs leads to the council chamber and the Governor's lodgings.

'White Town. The Fort stands pretty near the middle of the White Town where the Europeans inhabit. This is an oblong square about a quarter of a mile in length, but not half so much in breadth. To the northward of the fort are three strait handsome streets, and as many to the south. The buildings are of brick, several of the houses two stories high, by which I mean they have one floor above the ground floor. The roofs are flat and covered with a plaister made of sea shells,

which no rain can penetrate; and, being secured with battlements, they take the fresh air upon them morning and evening. The walls of these houses are very thick, and the rooms lofty; but what seems peculiar to this country is, the upper floors are laid with bricks instead of boards; but there are not many of these lofty houses, and I question whether there be more than a hundred and twenty houses in the whole White Town. By the dimensions I have given of this place, it may be very well concluded there are no gardens or very large courtyards before their houses; and indeed they stand pretty close to the street; but the Governor and people of condition have gardens at a little distance from the town. Over against the west gate of the fort is a barrack, or rather one long room where all the Company's soldiers are obliged to lodge when they are off guard; and adjoining to it on the north is a very commodious hospital where they are taken care of when they are sick. At the other end of the soldiers' barrack is a mint where the company coin gold and silver.

'The English Church. On the north side of the fort stands the Portuguese church, and to the southward the English Church, a pretty elegant building and moderately large: it has a handsome altar-piece, a gallery of fine carved wood resembling cedar, and an organ with which, as one observes, they salute God and the Governor; for when the Governor comes into church the organ always plays, which is a piece of complaisance we are strangers to in this part of the world. The church, as I remember, is floored with black and white marble, the seats regular and convenient, and all together it is the most airy lightsome temple that is to be found anywhere, for the windows are large and unglazed to admit the cooling breezes, and if it were otherwise the people must sweat intolerably at their devotions; for though in their own houses they are as thinly clothed as possible, yet when they come to church it is always in the European dress; and when I was there, full wigs happening to be in the fashion, every time a man visited the church he lost some ounces by perspiration: but to avoid these inconveniences as much as possible, prayers are appointed at seven in the morning, and in the evening they are usually comforted with a sea breeze. There are no other public buildings in the White Town but the town house; and a court of justice is held for civil causes.

'Strength of the White Town. On the West part of the town runs a river close to the buildings but on this side there is no wall, only one large battery of guns upon the river, which commands the plain beyond it. On the east there is a slight stone wall pretty high, and appears something grand to the shipping in the road: but there is very little occasion for any fortification, the sea coming up close to the town, and no large vessels can ride within two miles of the place, the sea is so very shallow; nor is there any landing but in the country boats, the surf runs so high and breaks so far from the shore. The north and south ends of the town are each of them defended by a stone wall moderately thick; but then, like the fort walls, they are hollow within, and would hardly hold out one day's battery. There is a little suburb to the southward of the White Town, inhabited only by the black watermen and fishermen, and consists of little, low, thatched cottage which hardly deserve the name of buildings. Beyond this is no other fortification on this side.

'Black Town. To the northward, adjoining the White Town stands a much larger, called the Black Town, where the Portuguese, Indians, Armenians and a great variety of other people inhabit. This is built in the form of a square, and is better than a mile and a half in circumference; being surrounded with a brick wall seventeen feet thick, with bastions at proper distances, after the modern way of fortification: it has also a river on the west and the sea on the east; and to the northward a canal is cut from the river to the sea, which serves for a moat on that side; so that Madrass, considering where it stands, might now be reckoned a town of strength if the garrison was answerable to the fortifications; but it consists of no more than three companies of four-score or a hundred men each, and one third of these Topazes or Portuguese Indians. The company indeed entertain two or three hundred of native Blacks in their service, and a body of men may be formed out of the inhabitants, who are very numerous; but these would be of little service against an European enemy, or even against the Moghul's troops if there was occasion for them beyond their own walls. The streets of the Black Town are wide, and trees

planted in some of them; and having the sea on one side and a river on the other, there are few town so pleasantly situated or are better supplied; but except some few brick houses the rest are miserable cottages, built with clay and thatched, and not so much as a window to be seen on the outside, or any furniture within, except the mats and carpets they lye on. The houses of the better sort of Madras are of the same materials, and built usually in one form, that is, with a little square in the middle, from whence they receive all their light;...but I must say, notwithstanding all this appearance of poverty, I never was in a place where wealth abounded more, or where ready money was more plentiful about twenty years ago......

'In this Black Town stands an Armenian Church and several little Pagoda's or Indian temples; to the latter belong abundance of female choristers or singing women, as well as Priests........They seem also designed to serve the publick in another capacity, and make up part of the equipage of a great man when he goes abroad; for every man of figure in the country, I observed, had a number of these singing women run before him; even the Governor of Fort St. George was attended by fifty of them, as well as by the country musick when he went out; but some of our late Governors, out of their excessive modesty, have thought fit to dispense with this piece of grandeur. But to proceed; besides the town of Madras, the East India Company have several of the neighbouring villages under their government, which yield them a considerable annual revenue, the whole having been purchased of the King of Golconda when he was Sovereign of this coast. The company have also a house and garden at St. Thomas's mount, a hill seven or eight miles to the westward of fort St. George, where, according to the the tradi on of the country. St. Thomas was buried.

'Beyond the Black Town are gardens for half a mile together planted with mangoes, coconuts, guavoes, orange trees, & c., where every body has the liberty of walking, and may purchase the most delicious fruits for a trifle: but I shall give a plan of the place, from whence the reader will have a juster notion of this noble settlement than he can possibly receive from the best descriptions.

'The Government of Madras. The Company's affairs are directed by the Governor and council, and they inflict any corporal punishments, short of life and member, on such Europeans as are in their service, and dispose of all places of profit and trust. There is also a court of mayor and aldermen held twice a week at the town-hall, where the Asiatick inhabitants sue for their debts, and implead one another, but civil causes among the Europeans are usually decided by a jury in the court of the Judge Advocate, to which belong two or three attornies, and as many serjeants or bailiffs who execute their processes, and make arrests for debt, & c. There are also justices of peace who hold their sessions in the Black Town, and decide criminal matters among the Indian inhabitants; and though they do not give judgment in capital cases, yet I have known them proceed against the natives so far as the cutting off their ears in the pillory, and as much as I remember, the offence was stealing people's children to make slaves of them. There is also a court of admiralty for maritime affairs, and the Governor sometimes suffers the officers of the land forces to hold courts marshal, and inflict punishments on the soldiers. As for capital offenders, they are imprisoned, till they can be sent to Europe, in dark dungeons, hot as a bangnio, under the town wall, and kept with rice and water; and thus trivial offenders, and those whom the goverment have any jealousy of are sometimes punished; but death itself would be more eligible to most men, for they neither suffer them, to be relieved by their friends, or any to converse with them that there may be no complaints of hard-ships carried to Europe.

'Nor are the common soldiers at all well used; scarce a day passes but one or other of them are tied to a post and whipped unmercifully, tho' their number is so small. This makes them mortal enemies to the government they should defend, and piques them more than any soldier like punishment would, such as riding the wooden horse, running the gauntlet, or the like. As to their being cooped up like slaves, and never suffered to stir out of the place, the usage already mentioned makes this piece of discipline necessary, for they would prefer any service to that of the company where they are so used; and should the town be ever reduced to extremity, their masters could have but little dependence on them.

Another hardship the soldiers complain of is that though they have served forty years they shall not be released, or suffered to return to their native country; and if they are so hardly to petition for it, a dungeon probably will be their portion.

'Company's officers and servants,...........The Governor, who is not only Governor of Fort St. George, but of all the settlements on the coast of Coromandel and the west coast of Sumatra,...... is also Captain of the first company of soldiers, as the second in council is of the next; and those who bore the name of captains had but lieutenants' commissions and pay very lately: besides the lieutenant, there are two ensigns to each company. The pay of a lieutenant is 14 pagodas or 61.6s. per month, the pay of an ensign 41.19s. per month, and of a private soldier 11.2s 9d. The serjeants have 21. 5s. a month each, upon which they live very well, all manner of provisions being extremely cheap; and linen so reasonable that a soldier may put on a clean shirt every day, as many of them do, or at least every other day when they mount the guard; and not a common soldier in the place but has a boy to wait on him, the Indians suffering their children to serve the English for very little upon account of their learning the language ..

'As to the Governor's salary, it is no more than 3001 per annum. The great advantages they make is by their perquisites, according to the modern phrase, or by trading for themselves. The other six of the council have salaries also from 10 to 40L. per annum according to their seniority, but they are usually great merchants and depend more on their trade than the company's allowance. There are also two senior merchants who have 40L. per annum, and two junior merchants 30L. per annum. Five factors 15L. per annum and ten writers 5L. per annum. These dine at the company's table, and have lodgings provided for them; but I believe no people in the world work so hard as the company writers do for 5L. per annum. Indeed their friends do generally supply them with something to trade with, or no man would undertake such a hazardous and tedious voyage, in quality of a writer, who was apprized of the fatigue he must undergo. The company allow the two ministers or chaplains of the fort 100L. per annum each and a house: how they manage it is a mystery to me, for they are not suffered to trade openly, and yet frequently lay up several thousand pounds; one of them particularly I knew who hoarded up money enough to purchase a bishoprick and sit in the English house of Lords at his return. But to proceed; the surgeon or doctor of thefort has about 40L. per annum salary, but he has so many ways and means besides of replenishing his pockets that he cannot well avoid acquiring a handsome fortune. The Judge Advocate has a salary of 100L. per annum, but makes as good a figure with it as a Lord Chief Justice with 2,000L. per annum in England. The Attorney General, as he is called, has no more than 23L. per annum, but he must be a very dull fellow if he don't improve his fortune. The company have also two essay masters in their mint, whoses alaries are 120L. per annum each. As for other inferior officers, it is not worth troubling the reader with them.

The Governor's State: The Governor has a much respect paid him at his going abroad as a sovereign Prince. Ths guards are drawn out, the drums beat as he passes by; and fifty or sixty armed blacks run before him, and some of the likeliest young fellows he can pick out of the European soldiers run by the side of the palanquin he is carried in, armed with blunderbusses. A numerous train of servants also, and the country musick attend him, and with their harsh untuneable trumpets give notice of his march........

'I had forgot to acquaint the reader that there is a free school at fort St. George, where children are taught to read and write, and a publick library which consists chiefly in books of divinity; and the church has usually a stock of three or four thousand pounds which is put out to interest, and the interest applied to the repairs of the church and relief of the poor; but these were so few about twenty years ago, that the greatest part of the interest went to increase the principal: and there is an addition also of a hundred pounds and upwards collected every year, so that the buildings belonging to the church are always keptin good repair, and beautified as they ought.

'The church is provided with a stock against accidents, and able to make such additions to the fabrick as may be thought necessary; but I don't hear they have yet built them a steeple, or got a set of bells, though it was a project much talked of, but content themselves with one, as the new churches in London are contrived; and probably when they hear that bells are out of fashion on this side of the world they will think no more of them there.

'Orphans, the children of wealthy parents, are also frequently committed to the care of the trustees for the church, being reckoned safer in their hands than in private persons, 'who too often defraud their wards of what is left them. The fortunes of these orphans are put out to interest also, and yield seven percent out of which the children are maintained and educated; and the principal, with the surplus of interest, restored them when they come of age. Where there is no will made, the Government takes care of the effects of the intestate, and sees they are restored to the relations of the deceased who are intitled to them, whether residing there or in England.

'The college, as 'tis called, at Fort St. George I was about to pass over without mentioning, the Gentlemen who are permitted to live there studying no art or science, but are generally favourities of the government, who are allowed to live here and indulge their ease..........'

Alexander Hamilton who visited Madras by about 1710 has also given a good description about Madras. The map of the city by Pitt gives an account of the topography of the city.

Position in early eighteenth century

In the latter part of the previous Century, Madras steadily progressed during the period of Agency and under many Governors. During the regime of Governor Elihu Yale (1687-92), the most important event was the institution of a Mayor and Corporation for the City of Madras.

In 1717, the local Nawab refused to restore the villages of Trivatore, Sathangadu, Catawauk, Vasalavada and Nungambakkam to the English. The villages were taken by force and later defended against the Nawab with troops. The immigration of weavers and painters to Trivatore was encouraged. A new village sprang on the south, which was called Collet Petta in the name of the Governor who encouraged settlement in that area. By 1727 the revenue of Madras was approximately 64,000 pagodas. One half of it was derived from sea customs; 1/6th from betel and tobacco, 1/12th from mintage, 1/15th each from land customs, arrack and wine licence and the farms of villages and gardens while 1/20th was from Quit rent and Scavenger's duty.

In 1727 a new Charter was received in Madras from King George I. It was mentioned in the Charter that greater judicial powers had to be given because of the development of the towns. The Governor and 5 senior council members were declared as Justices of peace for Madras town. The junior council member was first appointed as Sheriff of Madras, and later Sheriff had to be elected every 20th December by the Governor and the council. The Mayor was empowered to hear Civil suits. Appeal was provided either to the Governor or to the king in council. All original cases were to be tried by the Sessions Court (constituted in 1727) while all Civil cases were brought before the Mayor's Court.

The Governor, however, remained as the final authority to whom appeals could be made in cases involving more than thousand pagodas. In excess of this amount an appeal could be made to the king in council. Richard Benyon was the Governor of Madras for an unusually long period of nine years, (1735-44). During this period British came into closer relationship with Carnatic Nawabs. The new hamlets numbering 5 were presented to the British by the young Nawab Md. Said which formed the third batch of suburban villages granted to the Company. This included Vepery, Perambur, Poodupauk, Eravanore and Sadiangoopam. The total revenue in 1737 became 77,362 pagodas of which 45,000 pagodas represented sea customs revenue. In 1741 communications were opened with Ceylon. Nicholas Morse was the Governor from 1744 to 46. The most important event of his administration was the out-break of war between England and France and the struggle for supremacy in India by these two powers. Madras was captured by the French and for two and a half years the British Government came to an end. It was in 1749 that the English Company regained

possession of Madras under the treaty of Aix-la-chapelle.

A survey of 28th August 1749 shows the remains of the Black Town, the fortifications of the White Town, besides part of Peddanayakkapetta and the Island. It was then ordered by the Company that Fort St. George should remain subordinate to Fort St. David. But the seat of the presidency was again transferred to Fort St. George in April 1752. During this period the struggle for power continued in and around Trichinopoly. During the next 3 years the Madras institutions were re-established and the defence improved. In view of the French occupation of Madras for nearly three years, a fresh Charter making a new grant was issued in January 1753 by King George II. The Mayor's Court was dissolved. A new Charter provided for the constitution of a Corporation consisting of a Mayor and nine Aldermen. A Sheriff was to be appointed annually by the Governor and the Council.

Fortification

The fortifications were strengthened and the design of the White Town was modified, a new north front having been built close to the old wall. A gun tower was chartered in 1752. In 1785 a survey of Madras was undertaken and the map of F.L. Conrad was drawn. The map shows the region from a line of choultries and Bound Hedge on the north to Chepauk on the south and from the sea on the east to the Elambore or North River and Chintadripetta on the west. It is said that the map of Conrad marks the transition from ancient to modern Madras. The North River cut a new channel across the island and it was crossed by a foot bridge. Smith's Ditch was shown as the western boundary of the fortifications. The Fort Square was maintained. Peddanayakpettah had ceased to be the fashionable European quarter of the City. In the map is shown a pagoda 'Egain Isprah Pagoda' which represents the present Ekambareswarar temple in Mint Street. The River Triplicane was divided into two channels with a low marshy island between them. In Muthialpettah, the new Roman Catholic and Armenian churches are shown in the map in the places previously occupied by Portuguese and Armenian cemeteries. These sites are even now found. Kachaleeswarar temple is also shown in the map.

George Pigot was the Governor for the period 1755 to 63. His administration was strenuous and eventful. It was signified by incidents like Nawab Muhammed Ali's entry into Arcot, the final extermination of pirates by Watson and Clive, the capture of Calcutta by Siraju'd Daula; the relief expedition from Madras under Watson and Clive; the battle of Plassey. It was during his period that the Company from a trading corporation owning isolated towns, forts and factories, became a ruling power controlling vast territories.

Charles Bourchier became Governor in 1767. During his period Hyder Ali who usurped the sovereignty of Mysore joined hands with the Nizam and began an offensive on Madras. He dictated terms to English by show of force. A treaty was signed in 1769 which provided for an alliance between Hyder Ali and the Company for the mutual restitution of the conquests.

The final shape of Fort St. George as it is seen today came to it during the period 1770-75. It was due to the Company's Madras Engineer Mr. Ross. A survey of Madras Esplanade was also made. Six boundary stones were established and four of these may still be seen in China Bazaar, Parry's Corner, Kondichetti Street, Stringer Street and Badriah Street. Each of these stones is a obelisk, 15' in height. A later obelisk was inscribed at the Pophams Broadway when that road was formed.

Imprisonment of Lord Pigot

Lord Pigot was twice Governor of Madras. As pointed out earlier, during his first term of office i.e., between 1755 and 1763, he rebuilt the Fort St. George and successfully resisted the French attack. When he was called upon for the second term in 1775, he had to face rough weather in administration. The Governor's council was ridden with factions. Pigot was enthusiastic in the speedy restoration of the Rajah of Tanjore. On this issue, differences arose between him and the majority of the Council.

In the confusion which followed in the suspension of two persons, the majority announced in August 1776 the arrest of Pigot and the assumption of the government by majority of the Madras

Council. Pigot died in March 1777 while under detention. The order of the Company Directors directing the reinstatement of Pigot was received later. The progress of Madras was to some extent affected by this incident.

Administration in the later part of eighteenth century

Thomas Rumbold assumed charge of Madras Governor on 8th February 1778. An acquisition of territory (Nagore and the adjacent land) from the Tanjore Raja marked the beginning of his rule. Another important event was the second capture of Pondicherry by the British. Much activity was shown in improving fortifications of Madras. South front was completed and eastern front was taken up. Grants were given for the sale of lands and one of them who purchased it was Stephen Popham. Popham developed the area and the level of the land was considerably raised. The main street running north-south is known even today as Popham's Broadway. The various streets came to be named after several Company servants and a number of them exist even today.

A raised ground known as Hoghill lay to the south west of Peddanayakkapettah. This site was proposed for building a new fort in the event of old fort being washed away by the sea. The work was taken up and finished after a few months. In the low lying street, filling in with soil took place and the area is the present Mannady Street near Popham's Broadway.

On 22nd June, 1781, Lord Macartney took charge of the Government. On his arrival at Madras, he found the Carnatic over-run by the troops of Hyder Ali, the Madras population starving as a result of famine and the treasury empty. For two years before the arrival of Macartney, Madras was severely hit by famine as a consequence of scanty rainfall and Hyder's devastations. A Grain Committee was formed later and rice and other food stuffs were distributed. The famine became acute by the end of 1782 and contributions were received from Bengal. The scarcity continued till March 1784 when peace was concluded with Mysore and foodstuffs became available in good quantity. There was a Committee called Management of Famine Fund which erected temporary shelters for the poor sections of the City's inhabitants. They also obtained a permanent building outside the northern wall of the Black Town which later became 'Monegar Choultry'.

As a consequence of the war with the French, and Mysore, the city of Madras came to acquire a name as an important naval base. The squadron was also strengthened. Several fights have taken place in the coast near Madras.

The final phase of the construction of the Fort St. George was completed during the period of Macartney's Government. The defence of Fort St. George was completed by 1783. Arrangements were made for digging wells for the supply of water. Pipe water system was not popular. It seems that only one family in the Fort availed of house pipe facility and no family in the Black Town area did.

The necessity for the establishment of courts for rendering justice to the native citizens on controversies of property was felt. Their absence caused inconvenience to the Government also. The Attorney General pointed out that as per the Mogul Firman to the Company, no specific mention has been made of Civil and Criminal jurisdiction. It was decided by Government to have three justices who will meet once a week for settling property disputes among the natives.

Major General Sir Archibald Campbell became Governor on 6th April, 1786. He was also the Commander-in-Chief of the Army. His rule was free from wars and there was good progress in the development of institutions. Administration was divided into compact departments under Boards of Officers. The Boards constituted were the Military Board, Hospital Board, Board of Revenue and Board of Trade. The Governor founded an astronomical observatory, improved the postal service and encouraged the study of botany. The first local newspaper was published during the period. Stock exchange and Carnatic Bank were also established. An agreement was also reached with the Nawab for the reduction of the outstanding debt and also for the collection of Carnatic revenues by the Company's servants.

In 1787, an asylum was founded for orphan girls. It received the Government contribution of Rs. 750 per month. This 'Military Female Orphan Asylum' survived for a long time until the early 20th century when it was merged with the

Lawrence Asylum of Ootacamund and the Civil Orphan Asylum at Madras.

The first newspaper in Madras, 'Madras Courier' was founded in October 1785 and it was started by a Government printer.

Improvements were effected in the Civil Service. St. John's charity school was started in the year 1695. On the death of a few merchants, the property left by them was utilised as desired by them, for the improvement of orphans' home and charity school. A merchant left a legacy for building a bridge on the Mount Road across the surplus channel of the tank near Saidapet.

On the 20th February 1790, Major General Medows took charge of the Fort St. George and he held office for two and a half years and was also the Commander-in-Chief of the Army. The Governor General Cornwallis himself arrived to take charge of the command for the Mysore war. The war was successful from the British point of view. Tippu came to terms and agreed to pay the war indemnity of 3 crores and 30 lakhs of rupees. Cornwallis was received with great enthusiasm by the people of Madras and a statue was erected which is now found in the Madras Museum.

Lord Hobart became Governor on 7th September 1794. In May 1799, Tippu was killed and the whole area ceded to the British. The fall of Mysore and the re-establishment of the old Hindu dynasty by the Governor General was received with great acclamation by Madras citizens and for many years later, 4th May was obeserved as a day of public rejoicing. Tanjore was also acquired by the British by the Treaty of 25th October 1799 with Raja Sarfoji. Lord Clive's administration was marked by the annexation of the Carnatic, and the establishment of a High Court of Judicature with a Chief Justice and two Puisne Judges.

In 1798, the engineers at Madras revived the old project for the construction of a pier and the formation of a closed harbour at Madras. Nothing was done for making the pier for the next 50 years and more.

In January 1795 another weekly newspaper called 'Madras Gazette' was established. The map of Madras City was also published in 1798.

Lord Clive's regime thus saw several changes in the condition of Madras City as well as the Presidency. The supremacy of the English in South India was established by the destruction of Tippu's power in 1799. The Cochrane's canal was also opened during his period and this canal extended the North River into a navigable channel as far as Ennore. A banqueting hall was constructed and represented the triumph of the English at Seringapatam. It is said that the city's shape and extent during 1939-1940 was reached even during the opening years of 19th century. It is, therefore, considered that a fresh epoch in Madras history begins from this period, "in which consequent on vast extensions of territory, the interest of tracing the history of municipal affairs and institutions fades. in the light of the larger administrative problems of a great Presidency".

History of Madras during 1803-1827

This represents a period of consolidation by the British in South India. Lord William Bentinck who later became the Governor General of India was the Governor of Madras for four years. His rule saw the Sepoys' Mutiny at Vellore and a quarrel between the Government and a Judge of the Supreme Court of Judicature. Towards the end of his rule at Madras, Army Officers gave him trouble. Lord Bentinck was recalled by the Court of Directors of the Company because of his inability to deal with the situation effectively.

Sir George Hilaro Barlow was Madras Governor for six years from 1807 to 1813. In the beginning of the 19th century there was faction among several groups, the administration was not good, the authority was not powerful enough, army was in chaos, and merchants were eager to make money. Press criticised the Government by anonymous letters and pamphlets.

An English observer Lord Valentia who spent a few days in Madras during 1802-1811 has given his impression of Madras. "In appearance", he wrote, "Madras differs widely from Calcutta, having no European town except a few houses, which are chiefly used as ware-houses in the fort."

Sir Edward Elliot was the next important Governor of Madras. He gave his name to Elliot's Beach, Adyar, and to Edward Elliot's Road, Mylapore. He appointed a judicial commission with Munro as its President in 1814. Several

reforms in the administrative system were made by the commission.

The new regulations transferred the control of the Police and the functions of the District Magistrate from the Judge to the Collector. The employment of the hereditary village officials for police work was allowed. Panchayats were created and they were the courts of arbitration for villages and larger areas. Rupee replaced the star pagoda as the standard coin of the Madras Presidency and the exchange rate was three and a half rupees per pagoda.

The Madras Literary Society was started in 1817 by the then Chief Justice of the Supreme Court, Sir Thomas Newbolt. The oriental manuscripts of this Library were transferred to the Board for the Fort St. George College created in 1812. Col. Colin Mackenzie who made historical and antiquarian research in India had a good collection of manuscripts, historical records, documents and inscriptions. The Government Oriental Manuscripts Library now housed in the Madras University Library contained the huge collection of Col. Mackenzie.

Sir, Thomas Munro who became the Madras Governor in 1820 and continued till 1827, was both a great soldier and an administrator. He was the father of the Ryotwari System. He contributed substantially to the system of administration. His statue was raised by the people of Madras City which can still be seen in the city.

There were 12,500 schools of indigenous origin for over 12 million people. Munro tried his best to improve literacy. He initiated English education in Madras. A Body called Board of Public Instruction was established and its responsibility lay in assessing the educational facilities and to improve and direct public education.

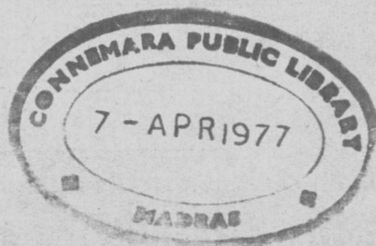
Improvements to Madras City during the first quarter of the 19th century

Old Fort Square was dismantled and wings were added in 1825 to accommodate the Secretariat. The council building was added to the east of the Secretariat later. No other structural change has been made within the 19th century. The beautiful St. George's Cathedral was built in Mount Road in 1814-1816. Many garden houses were constructed between Triplicane High Road and the Long Tank of Mylapore now occupied by the suburbs of Thiruvatteeswaranpettah, Royapettah, Nungambakkam and Teynampet. St. Andrew's Kirk in the Poonamallee High Road was built during 1813-21. With Government support it was built by Scotchmen. It was followed by the Wesleyan Chapel in Broadway and St Mathias Church at Vepery. Thus rapid construction of buildings, churches, etc., and educational reforms were significant during the early part of the 19th century.

S. R. Lushington was the Governor of Madras during the period 1827 to 1832. During his period the Madras Club was started which was the only one of its kind in India. In 1830 a directive from the directors was received stressing the need 'to train a body of natives qualified to take a larger share and occupy higher situations in the Civil administration of the country besides improving the intellectual and moral condition on the people.' In 1834 an elaborate scheme was proposed to open an English School and make improvements in class books. A Committee of Native Education with five officials was appointed and the education reforms were entrusted to this Committee consisting of 5 officials. The Tahsildari and Collectorate schools which were established previously were abolished. Four suburban English Schools were proposed to be started and each school was to have an European Headmaster.

Lord Elphinstone issued his minute in 1839 in which he proposed the establishment at Madras of a College or University to teach literature, philosophy and science and a High School which were to be a department of the University. In April, 1841 the High School was started. The College however was not fully organized until 1853. In 1854 all educational activities were entrusted to the newly created Department of Public Instruction.

On 1st January 1841 a new Light House was opened for use. It was an imposing structure and was 120′ above the ground. This was abandoned when a new one was erected in the new High Court Buildings. Reorganisation of the Mint also took place in 1841 and was located in the Mint Building at the northern end of the Mint Street or Salai. Progress was made in the establishment of institutions meant for professional and technical education. A private School of Industrial Art was started in 1850 by Dr. Hunter.





Government Museum Theatre, Egmore

The Madras University Buildings, Chepauk

which was taken by Government in 1855 and it is the present school of arts. In 1834 the Civil Engineering College was started which became a college in 1862. Madras Medical College was started in 1835 in the name of Madras Medical School. It began as an institution to impart instruction in medicine and surgery to Anglo-Indian and Indian youths. A missionary, John Anderson opened in 1837 a General Assembly's School in George Town area. A Hindu institution was also started during the period by the Hindu trustees who administered the charitable endowments left by Pachaiyappa, a Madras merchant of the 18th century. It grew into Pachaiyappa's College which is now located in Chetput. The foundations of good educational institutions were thus laid during the first half of the 19th century.

Madras City during 1842 to 1859

An important event was the abolition of Carnatic Nawabship in 1855. The Military forces of the Nawab were disbanded. The Indian Mutiny of 1857 did not affect Madras. The Education Despatch dated 19th July 1854 issued by the Court of Directors was an important landmark in the field of educational reform in the subcontinent and it was described as the 'Magna Carta of English Education in India, and as 'the intellectual charter of India'.

The medium of education was English in higher classes and local language in the lower classes. The Department of Public Instruction was created. The University was re-organized as the Presidency College with an attached Law Department. A Training School for teachers was established in 1855-56. The Madras University was started in September 1857 under Act No. XXVII of the Indian Legislative Council. It was modelled on the London University.

Madras during the middle and later part of 19th century

The condition of the Madras City by the middle of the 19th century is revealed by the picture of the city published in 1855 in the Gazetteer of South India. The low-lying Black Town had three broad streets running north to south. The buildings in the area consisted of the Free Church, Mission house, Black Town Church, Wesleyan Chapel, Church Mission Chapel, Male and Female Orphanage, Pachaiyappa School, European shops, the Jail, the Commissariat Office etc. There were besides a number of irregular streets of different dimensions where the Indians lived. The Indian houses were not good and most of them did not have even good ventilation. Drains existed on both streets and common sewers went towards the sea. Drainage was on the whole poor and imperfect. The city had good pure and ample water supply through the medium of wells. There were two reservoirs in the city. One was in the Fort, the other was in between the Fort and Black Town and these reservoirs were supplied through pipes from the wells.

The Madras markets were still supplied with grains, vegetables, mutton, fish provisions etc., and the prices were also moderate. There was a respectable club and three family hotels in the city. In the field of education the advantage offered to Indians was not fully utilised and the educational progress was comparatively poor in the Madras region. There was an infirmary for medical relief to the poor natives. There were a General Hospital, a Lunatic Asylum, an Eye Infirmary, a Lying-in-Hospital, a Military Orphanage each for males and females, Missionary, Protestant Charity, Free and Grammar Schools, a Polytechnic, Friend-in-Need and Temperance Societies also. The social life of Europeans in the city was not good according to John Bruce Norton. The use of hookas slowly declined and the number of palanquins also gradually decreased. Such was the picture of Madras City in the middle of the 19th Century.

Charles Trevelyan became the Governor of Madras in 1859. His administration was successful in all respects. He was succeeded by Governors Ward and Denison. Ward died within a month of his assumption of office. Denison who was not favourably disposed towards local people was in office between 1861 and 1866. The Madras High Court was created in June 1862. There were a number of journalists during this period. The foremost among them was Gazulu Lakshminarasu Chetty who published the *'Crescent'* from October 1844. It was the earliest Hindu periodical. It was intended to act as a corrective to the missionary journal called 'Record'.

The earliest political group was the Madras

Native Association which was to be the forerunner of Madras Mahajana Sabha and Lakshminarasu Chetty took a chief role in the association. Mr. M. V. Sadagopacharlu, a talented Madras Lawyer was nominated to the newly formed Madras Legislative Council. In 1863, Mr. Lakshminarasu Chetty became a member of the council, on the death of Mr. M.V. Sadagopacharlu. Another prominent personality of the period was Mr. C. V. Ranganatha Sastri a great scholar in Sanskrit and Law. Press was revitalized by Mr. G. Subrahmanya Ayyar and the 'Hindu' the prominent newspaper was started by Mr. Viraraghavacharya and this was guided and controlled by late Mr. S. Kasturi Srinivasa Ayyangar. 'The Hindu' became powerful instrument of public opinion. Sir T. Muthuswami Iyer became the first Indian Judge of the Madras High Court.

The Railway Company in Madras was formed in July 1845. The first construction work began on 9th June, 1853 and in 1858, South Indian Railway was formed. Madras was the railway headquarters. A line from Arcot was opened in 1856. Lord Hobart who was the Governor from 1872 to 1875 initiated the Madras Harbour Project. He was also responsible for the drainage system in the city. Next permanent Madras Governor was the Duke of Buckingham and Chandos and his rule lasted for 5 years from 1875 to 1880. A great famine occurred in South India during 1876–78. He built a beautiful Government House in Ootacamund.

The first regular Census was made in 1871. Prior to this, several quinquennial enumerations of population were made; they were mostly based on guess work. The population of Madras City in 1871 was 397,552 and in 1822 the population was recorded as 462,051.

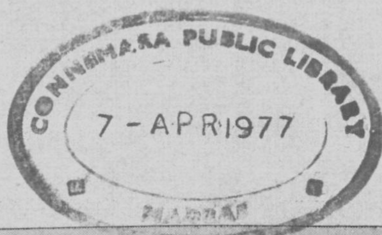
Sir Mountstuart Elphinstone Grant-Duff who governed Madras for five years from 1881 constructed the Marina which extends from the mouth of the Cooum river in the north to Santhome in the South.

The Congress Party came to life during the period 1881–90. The Indian National Congress was held in Bombay in 1885. It held its session in 1887 at Madras. The Governor, Lord Connemara gave a garden party in honour of the delegates at the Government House. The Public Library in Egmore was named after Lord Connemara. The buildings of Madras Museum and the Library were built during his period. In 1889 the new buildings of the High Court were constructed. The provision of water supply to the City was made in the latter half of the 19th century by the Corporation together with drainage works. Madras City was assured of good drinking water from the Red Hills Lake Reservoir located at a distance of 7 miles from Madras City. A new scheme was introduced later by which the water from the reservoir at Red Hills was taken first to the pumping station at Kilpauk, where it was filtered and distributed through pipes by means of mechanical power. A thorough drainage scheme was also executed. Besides regulating drainage, the Municipal Act of 1884 provided for the prevention of infectious and dangerous diseases. Thus Madras City had grown gradually throughout the century under the British Government.

Madras in the present century

At the beginning of the 20th century the city was considered as 'a one–storeyed city'. The distribution of the population was fairly even. There was some concentration of population in Perambur because of the establishment of mills in the area during the last quarter of the 19th century. In 1871, the area of Madras City was 27 square miles as against the present 49 square miles. The area of the city remained almost undisturbed from 1871 to 1931 except for the addition of Mambalam by which the area rose to 29.4 square miles. In spite of the growth which Madras City has witnessed, it could not be compared with industrialized cities like Bombay and Calcutta. A study of the population trends will show that the increase of population in Madras City has been to a large extent dependent on the rise and fall of price level of food stuffs. The city was further extended in 1946 by adding some of the surrounding villages of Chingleput district. The growth of the City is reflected in the activities of Madras Corporation. The City was divided into 8 wards in 1867, 30 divisions in 1919, 40 divisions in 1936, 50 divisions in 1947 and 100 divisions in 1959.

The Corporation has extended its activities and assumed the responsibility of maintaining sufficient





The High Court Buildings, Parry's Corner

number of Schools, Maternity and Child Welfare Centres, gardens and parks, and zoo. It also attempted to improve the water supply and drainage system. In the growth of the Madras City the following are the important land-marks. Madras Electric Supply Corporation was established in 1906. Indian Bank was opened in 1907. Important Banking Institutions like Imperial Bank of India, Chartered Bank and National Bank established its branches in Madras.

First Governor of Madras in the 20th century was Lord Ampthill (1901–06). Sir Arthur Lawby was the Governor from 1906-1911. Lord Pentland was the Governor from 1912 to 1919. He took great interest in the educational development of the State. Lord Willington was the Governor during 1919 to 24. He took a lot of interest in the cultural and social activities of the City. The Pykara Project was implemented as well as Mettur Dam. After Willington followed Lord Goschen (1924–29), Sir George Stanley (1929–34) and Lord Erskine (1934–36). During 1934 and 36 for a short period two Indians acted as Governors. They were Sir Md. Usman Sahib and Sir K. Venkata Reddy Naidu. In 1937 the Ministry of Shri C. Rajagopalachariar came into power, for two years. The influence of the Governors on the administration considerably diminished.

The growth of the City was found in many directions, in trade and commerce, in improved transport and communications and development of residential quarters. Madras Harbour was considerably improved. Industrial growth has been marked after 1930. With the increase in the availability of power and the possibility of cheap labour, more and more industries were started around Madras City. The most important one is the group of Buckingham and Carnatic Mills. Tanneries have played an important role in the development of Madras. Integral Coach Factory was located in Madras City. The establishment of several manufacturing units engaged in car making, Automobile Work Shops, Rubber Factories, Railway Workshops, Industrial Estate both in Guindy and Ambathur, the Surgical Tool Factory have given a new look to Madras City and its suburbs.

The expansion has been particularly marked on the western and the southern sides. In education, the city has recorded remarkable development apart from the increase in the literacy percentage. A number of Arts Colleges, Medical Institutions, Engineering and Technological Institutions have been established. The establishment of professional Colleges for Veterinary, Law and Teaching, the location of the Indian Institute of Technology and the establishment of Central Leather Research Institute have added to the development of the city. Madras University has completed 100 years of useful service in 1957. In commemoration thereof, a big building has been constructed on the Marina.

Recapitulation

In brief, the City of Madras was founded by a historical accident and strategic necessity. Its growth has been due to immigration of persons from rural and urban areas. It has played an important role in the development of States of Kerala, Mysore, Andhra Pradesh and Tamilnad. It does not have the industrial facilities which Bombay and Calcutta had for rapid development as an industrial city. It does not have adequate source of power. Its hinterland is poorer when compared with that of Bombay and Calcutta. All that it has is its skilled and unskilled labour. Compared with other parts of India, Madras is poor in industrial resources.

With all its drawbacks, the growth of a tiny village into the fourth largest city in India with a population of two millions is a remarkable achievement of human enterprise. It shows what Indo-British co-operation has done in building up this city. The role played by the British is as vital as those of Indians. It has acted as the centre of culture and education in South India and has given scope to the efflorescence of a large number of important personalities. Madras City has also seen the growth of many movements which have played an important role in the history of this sub-continent. A large number of institutions which are known in India and outside are found located in the City. We will no doubt be describing these institutions in later chapters. But suffice it is to say that the contribution of Madras City to the life of India in philosophical, material, cultural, legal and political fields has been remarkable and will continue to be so in future.

Built in 1640, the Fort St. George grew in pro-

sperity and population. It grew and prospered in the half century which preceded the out break of the Anglo French wars. The rival powers which struggled for power in Carnatic did not realise the significance of the acquisition and gradual strengthening of the English Presidency. The other footholds on the Coromandel coast were only Fort St. George with the neighbouring town of Cuddalore and factories at Masulipatam. Thus was set the stage for Anglo French rivalry in Carnatic which decided the future of Madras City and of India.

The history of Madras in the 17th century was decided by the political developments. No trade could be done unless the British had political control over the country. By 1740 the political scene became uncertain and confused. It would not be necessary for our purpose to discuss the political rivalry between the French and the British. But as a result of fighting during the Seven years war which broke out in Europe, the French power in Deccan was destroyed. In 1761 Pondicherry was surrendered to the English. Pondicherry and other settlements were restored to the French by the treaty of Paris in 1763. In fact the governance of the Carnatic became the responsibility of the Madras Government which could not maintain a large army without the revenue of Nawabs. In 1763 they got the district of Chingleput known as Madras Jagir for the maintenance of the army. By this time the equilibrium of British supremacy has shifted to Bengal with the battle of Plassey. It actually meant the decrease of importance to Madras City.

The next challenge for the supremacy of English was the rising power of Hyder Ali of Mysore, who had early success against British. By the treaty of Mangalore concluded in March 1784, Hyder Ali was checked. Till then Parliament had never intervened in the internal affairs of the Company. With the battle of Plassey its attitude changed. It was reflected in the Regulating Act of 1773 which made a radical change in the constitution of the Government and also in its relation to the Crown. It was the first step taken by Parliament to establish an efficient Government in India. But with the enactment of the Regulating Act, Calcutta became the Headquarters of the British in India and Madras was relegated to a secondary role. The final stage in the consolidation of the British in Madras was accomplished by the defeat of Tippu Sultan.

The position of the English was made secure in South India. The succession of the throne of Tanjore which was disputed among Amar Singh the brother of the Rajah and Sarfoji the adopted son was settled by the English. In 1792 in a new treaty Mohammed Ali handed over the entire management of the Carnatic to the English and paid a fixed sum of annual maintenance of the army. The direct administration of the Carnatic was assumed by the English after giving a pension of 1/5th of the revenue of Carnatic to Nawab. Sarfoji of Tanjore in 1799 signed the treaty handing over the administration of Tanjore to English retaining the control over the Fort of Tanjore and its vicinity. He was given 1/5th of the revenue as pension. The title of Tanjore Rajah was abolished by the Court of Directors in 1832. All these conquests and annexations (South Canara, Wynad, Ceded Districts, Carnatic and Tanjore) enlarged the Madras Presidency to its size in 1901 with Madras as the nucleus.

Early in the 19th century the British consolidated their position by reducing Zamindars and Poligars to subordination who were particularly troublesome in the districts of Madurai and Tirunelveli. Successive punitive expeditions were made to break down their resistance. Southern Poligar wars ended in 1801 with the fall of Katta Bomman Nayak who fought for his independence. This marked the end of the acquisition of the Madras Presidency by the British. In the 19th century it settled down under the British Crown. It constituted one of the three major Presidencies in India. The elimination of other foreign powers and settlement of the limits of native territory gave stability and paved the way for an era of commercial development. When battles were fought in other parts of India to consolidate the British power, Madras Presidency resumed its tranquil course. The Presidency has abundance of stores drawn from its rich natural resources. When the Sepoy Mutiny in 1857 shook British power to its foundation, Madras army stood firm and loyal. The Government of Madras was vested in the Governor and his Council. No separate history of Madras City can be conceived except

that it functioned as the capital of the great Presidency.

At the beginning of the 20th Century, Madras became the most important polyglot of India's great administrative divisions. It has no fewer than five highly developed languages each with its own character, literature and tradition. This helped Madras City to grow into a cosmopolitan centre. This century witnessed the disintegration of the Presidency. The first step was taken in 1935 when Orissa was formed. The second step was the formation of the Andhra State in 1953. Third was the formation of Kerala and Mysore States to which, parts of Madras Presidency were transferred. Thus the State has become a Tamil State. Still Madras City has not lost its cosmopolitan character as will be seen from the composition of its population in 1951 and 1961 which will be discussed in another chapter of this report.

Madras has its own complex history. It is located in the tropical section of India, isolated from the rest of the world by its position. Its contact with other countries is mostly through sea-borne commerce. It has, therefore, developed interest in Malaya, Burma, Ceylon and far eastern countries. With the establishment of British power in India, its activities expanded and more and more persons migrated to other countries beyond India. After Independence the prospects in the far eastern countries got reduced owing to adverse political developments hostile to Indians. Thus today we face the problems of Burmese and Ceylonese repatriates. Still Madras has recorded an out migration of 4% during the decade 1951-61. This migration is now oriented to northern parts of India. The Independence has also facilitated the movements of north Indians to Madras City and its neighbourhood in search of opportunities in investment in industry and trade.

In spite of this apparent isolation from the rest of India in location and history, Madras City has developed and continues to develop a cosmopolitan outlook and culture. It has an important role to play in the historical, cultural and intellectual development of India, representing a distinct component of Indian Nation, the highest form of Dravidian Civilisation. In the succeeding chapters the story of Madras, its development and its institutions will be presented in greater detail to the reader.

CHAPTER II

PHYSICAL SETTING

Topography

Madras is the fourth largest city in India. It lies between 12°9′ and 13°9′ of the northern latitude and 80°12′ and 80°19′ of the eastern longitude on 'a sandy shelving breaker swept beach' situated about the middle of the coast of Bay of Bengal. It is more or less in the same latitude as Bangalore. The strip of land on which Madras City has developed is low lying and is topographically uninteresting. It extends for a length of 12 miles along the Bay Coast and runs 2 to 6 miles inland in a rugged semi-circular fashion covering an area of 49.74 square miles. It is bounded on the east by the Bay of Bengal, and on the remaining three sides by Chingleput District.

The land surface is almost flat like a pan-cake. It rises slightly as the distance from the sea-shore increases but in no part of the city limits the elevation is more than 22′ above sea level, while in many thickly populated neighbourhood the levels are so low as to create serious problems of drainage.

The Cooum and the Adyar

The city is intersected by two languid streams, the Cooum and the Adyar. The former takes a serpentine course through the heart of the city and enters the sea immediately south of the Fort St. George. The latter wends its way through the southern part of the city for a length of about three miles and enters the sea near the locality which bears the name of Adyar. They are minor rivers which do not carry enough water to maintain a clear channel and except during rainy season they both form sand bars at their mouths. The Adyar forms a salt lagoon separated from the sea by a narrow ridge of sand. The sand bars at their mouths are due to the action of the surf-driven sand running north, which is a characteristic feature of the Bay Coast in this part of the country. This formation has been accelerated by the construction of Madras Harbour. The sea waters gain ingress into these rivers during high tides.

Considerable parts of the courses of the river Adyar and Cooum lie within the limits of Greater Madras which will be described in a later chapter. It, is therefore, proposed to describe the courses of these two rivers.

Cooum river otherwise known as the Old Bangaru channel starts from Kesavaram Anicut situated one mile above Kesavaram village and built across Kortaliyar River where a regulator has been provided for supply to this river. The etymology of the word 'Cooum' gives some clue to the source of the river. 'Kupa' in Sanskrit means a 'well' and the Tamil word 'Cooum' means river issuing from a well. The surplus from the Cooum tank joins this course at about five miles lower down and this is actually the head of the Cooum river which is located 30 miles west of Madras. It irrigates parts of Sriperumbudur and Saidapet taluks of Chingleput District before entering the city limits, where it is to a greater extent, stagnant. It divides the city into two equal halves running through Nungambakkam, Chetput and Triplicane before reaching the sea. It receives a sizeable quantity of the sewage of its neighbourhood. About a mile from its mouth, it divides into two equal branches, the left branch receiving near the point of bifurcation, a water course from the north. The left branch flows by the southern rampart of the George Town and later along the south-west face of the Fort. The right branch first flows southward and later takes the south-eastern direction. Both the branches join about 300 yards from the sea forming what is now known as 'island'. Commercially, this river has no importance except the branches that encircle the 'island' are the connecting link between northern and southern sections of the Buckingham Canal. The river is crossed by nine bridges, viz., the Napier, the Wallajah, the Periamet, the Chintadripet, the Harris, the Commander-in Chief Road, the College, the Spur Tank and the

Aminjikarai and by two cause-ways at Choolaimedu and Naduvakarai. At its mouth near the bar it is spanned by the iron bridge called the Napier Bridge connecting Marina with the South Beach Road. In the northern branch of the Cooum off the 'island', there are two bridges one near the General Hospital and the other to the west of the Fort. The river which ought to be an ornament and a blessing to the city, is now only a source of nuisance and a receptacle for the sewage of the neighbouring population.

The word 'Adyar' in Tamil means 'Choked river' from 'Adai' meaning 'to silt up' or 'to be choked' and from 'Aru' meaning river. Perhaps the name has a reference to the sand bar at the mouth of the river. It rises in Chembarambakkam tank. After running about 12 miles it enters the city limits. It has a larger volume of water than Cooum, supplied by the drainage of the hilly areas in the south-west of Madras. Where the Buckingham Canal crosses it, locks are provided on the banks on either side. The river has no commercial importance, but the fishermen in the neighbourhood make their living by fishing. It is crossed by three important bridges one near the Mount, a second, the Marmalong at Saidapet and the third, a very long one called the Elphinstone bridge constructed in 1842. There is also an old stone causeway locally called 'Kathi-Parai' causeway about half a mile upstream from the Marmalong Bridge. The Adyar presents the same appearance as the Cooum and has formed lagoons at its mouth. The 'Quibble Island' formed at its mouth is a large marshy area which is now used as site for construction of buildings.

The Buckingham Canal

The Buckingham Canal, otherwise known as the East Coast Canal is a series of channels connected more or less parallel to the sea linking the Krishna river in Andhra Pradesh with Markanam back-waters in the South Arcot District in the south. Entering the city limits at Tondiarpet in the north and running along the western outskirts of George Town it joins the new Canal (part of the Cooum) south-west of the General Hospital. The Cooum river serves as the link between this reach and the next one commencing near the University Buildings. From this point, the Canal passes south amidst built-up areas of Triplicane till it crosses the Edward Elliots Road and then taking a westerly course cuts through the dense areas of Mylapore for a considerable length, joining finally the Adyar river south of Greenways Road. Further south, the canal passes outside the city limits. The mouths of the canal at its junctions with the Cooum near the University buildings and on both flanks of the Adyar are provided with locks to equalise the water levels of the canal and the tidal levels of the two rivers.

The only other channel worth mentioning in the city is the Otteri Nullah which commences from the village Mullam, runs eastwards upto Purasawalkam and then taking a northerly and north-easterly course, passes through the Buckingham and Carnatic Mills and finally joins Buckingham Canal north of the Basin Bridge railway junction. The channel carries only the surplus drainage from the areas in the vicinity of its course.

Physical features as described in earlier reports

To give the reader an idea of the physical features I reproduce below an extract from the report on the Madras Municipal Census 1871. "But within these limits even, the physical features of the place were very different from what they are now. The Cooum, or as it was then called, the Triplicane River, ran very much as it does now, except that, from Egmore to the sea, it wandered through a marsh, encompassing great islands and making many a creek on either bank. Its bar was just where the bar now is, and one of the very first public works executed by this Government was the building of a bridge where the Government House Bridge now stands. At first a bridge of boats, piers were soon erected, but the two centre spars were only covered with loose beams which could at any time be carried away, compelling an enemy to ford the river. The water which now forms the north boundary of the island was not there in 1639. Nor is that reach of the stream any portion of the Cooum. Wandering over a belt of country, of which Cochrane's Canal now marks the centre line, was a stream called the North River. That, too, lay among marshes, such as still extend for a long distance on either side of the canal. Where the

Salt Cotaur Station now is, was a great island surrounded by the river. The site of the Municipal Sewage Farm and Gunpowder Mills was another island. The main channel followed tolerably exactly the course now shown by the canal as far as the bridge between the Penitentiary and Saint Mary's Cemetery. That bridge did not exist, nor was it required, for the short length of apparent river that skirts the south side of the Penitentiary is a Canal, dug after the date now being considered. The river bent, as now, suddenly to the north-east at that point and went in the present course as far as the sudden turn half way between the Medical Hospital and the Wallajah Bridge. This last turn the North River did not make, but flowed straight on passing exactly where the Saint George's gate now is, and thence in a fairly direct line to the site of the great barracks. There, it turned sharp to the south, passed along the front of the Government Office to the Arsenal gate. There it again turned to the east and seems to have entered the sea in front of the house now inhabited by the Fort Chaplain. It is not quite clear, however, whether it did not continue its southerly course parallel to the sea as far as the Cooum bar. The earliest descriptions seem to point to the exit first described. Mr. Day's Fort was erected in the space thus enclosed between the North River and the sea. This North River had several tributary streams. One of them arose near the spot where Saint Xavier's Street enters Popham's Broadway and flowed along the Broadway to the site of the Exchange Hall, where it spread out into a large sheet of water and thence, diminishing in size, crossed the Esplanade where the 'Scoop' drain now is. The main drain along Davidson and Umpherson's Streets was constructed in the bed of this stream and filled it up. In fact the main drain and the scoop drain are to this stream as the Fleet ditch to the Fleet river. The wide hollow was never properly filled up and to this day that part of Popham's Broadway near the Market is lower than mean sea level, and after a heavy shower the water lies there to a depth of two feet or more. Hence also the title of Popham's Broadway, for this street was made when the river was filled up and the Broadway then occupied all the space between the east side of the present Broadway and the west side of Davidson and Umpherson's Street. Mannady Street derived its name from the fact that it led to a ford across this stream. In old maps, it is marked as "River Street". Its name implied that there, the people 'stepped in mud'. Other arms of the North River seem to have passed through John Pereiras and joined the main stream near the Elephant gate, thus converting Yedapollium and John Pereiras into an island".

Mr. Love in his book 'Vestiges of old Madras' while referring to the selection of the site for the Fort by Day, describes the topography of the place as follows :

"Two streams flowing from the west and north respectively had a common outlet to the sea about a mile south of the village of Madraspatnam. The first, which was then known as the Triplicane River, and now as the Cooum, followed a winding course through the villages of Chetput, Nungambakkam and Triplicane. The other, a smaller stream called the North, or Elambore River flowed parallel to and about a mile distant from the coast along the west side of Madraspatnam, till it reached the site of the present General Hospital. It then bent sharply to the east, and, when near the sea, turned southwards again for about three-quarters of a mile, and met the Triplicane River at its outlet. The first bend, by the existing General Hospital, was within 300 yards of the Triplicane River and at that point a cut was made, at some unknown period before the end of the seventeenth century, between the two streams, with the object probably of equalizing flood-levels. The low-lying, marshy tract of land lying between the rivers was consequently surrounded by water, and it was known as early as 1643 as the Island. The two streams formed a wide backwater, and communication with the sea was open only during the rains. The site chosen for the fort was a point on the surf-bank of sand which lay between the Elambore River and the sea, three-quarters of a mile north of the outlet, and just south of the town or village of Madraspatnam. At or near the site, were a few huts forming a small kuppam, or fishing hamlet."

Fortification of Black Town

In 1767, Hyder Ali raided Santhome. It emphasized the need to fortify Black Town as

Muthialpettah and Peddanaickenpettah were then known. The work of construction of a rampart was begun in 1769 and was completed in 1772. The rampart as constructed, covered the north and west fronts of modern George Town and a portion of the south front. It consisted of 17 bastions connected by curtains averaging 300 yards in length. The northern wall presented a slightly convex front towards Tondiarpet. The alignment of the west face which followed the North river was nearly straight. The total length of the rampart was three and a half miles. On the outer side of the walls the ground was cleared for a width of 600 yards and it provided a field for fire. These places were known as Esplanade. The southern part of the Western Esplanade was converted in the middle of the 19th century into People's Park and the northern part into Salt Cotaurs. The walls had numerous gates of which the one known as Elephant Gate still has its name preserved for the site on which it stood.

Wall Tax Road commemorates a tax which was never collected. It was proposed to have a good road running on the side of the western rampart and to meet the cost, a new tax was proposed to be levied on the house owners in lieu of the quit rent. But the tax was never actually collected. It is also said that arches in the western wall were occupied by Indians who paid a rent or tax and hence the name Wall Tax Road which runs for two miles close to the western wall. Debtor-prisoners were confined in the bastions in the north-west angle of the wall while criminals were put in the northern wall. Even to-day the street next to the demolished north wall of the Royapuram Hospital, is called the Old Jail Street. The walls were pulled down in 1859 and the site was sold in convenient lots as free-hold building sites. Between 1866 and 1872, the whole site was re-purchased and the Central Railway Station was built.

Changes effected after the rendition of Madras to the English (1749)

When the British resumed possession of Madras in 1749, they found that half of the Black Town, the whole of its fortification, and the Company's garden house had been demolished by the French. The destruction was ordered for the better security of the White Town. Further demolition of all buildings in the old Black Town within 400 yards of the covered way of the north front of Fort was carried out in 1758. Then the term Black Town was applied to the suburbs of Muthialpettah and Peddunaickenpettah.

When the English got possession of Madras in 1749, they remodelled and strengthened the Fort. The river running on the west side was diverted to the present course. Its old bed was built up and included in the Fort, thus increasing the area of the Fort. The temple of Chennakesavaperumal which stood in the Old Black Town - on the present High Court ground was also demolished in 1757. It was rebuilt a few years later at the present site in Peddunaickenpettah (now popularly known as Flower Bazaar area.)

Popham's Broadway

There was a low-lying region between Muthialpettah in the east and Peddunaickenpettah in the west known as Attapallam. Along this ran a drainage channel which joined North River. This channel would represent the alignment of the present Broadway. In 1780, Mr. Stephen Popham reclaimed the marshy land, dug the channel and cross drains, raised its level with earth from Hog-hill and gradually built up the whole area. The main north and south street which traverses it, came to be called 'Popham's Broadway' in memory of his strenuous efforts to reclaim this waste land. The Black Town was renamed as George Town in 1912 in honour of the visit of the Prince of Wales who later became King George V.

Madras Harbour

The construction of the artificial Harbour also changed the physical features of the city. Before that the sea washed against the walls of the Parry's Building. Great accretion of sand took place opposite Parry's corner, as a result of the building of the Harbour. The work was begun in 1876 and completed in 1881. With the construction of Harbour the foreshore on the south side has advanced hundreds of yards since 1876. On the other hand, there is a current on the northern side and to arrest it effectively, temporary measures had to be adopted. Further a proposal to construct a stone revetment on the coast at a cost of Rs. 18.36 lakhs is also under the

consideration of the Government. In order to cope up with the increasing volume of trade, the harbour has now been expanded on the very mouth of Cooum.

Love's description of Madras

Approached from the sea, little of Madras is visible except the first row of its buildings. Mr. Love describes vividly how Madras unfolded itself to the vision of a voyager by the end of the seventeenth century and what change has come over it with the passage of two hundred years.

"To the voyager of those days who approached Madras from the south, the prospect must have been exactly what the traveller of the present day may see at the same season of the year from the deck of his steamer - a gently undulating sapphire sea; a thin line of white where the swell breaks in surf upon the shore; a strip of golden sand; a continuous fringe of dark foliage which seems to cover, as if with dense forest, the level surface of the land; and in the background a few isolated purple hills of no great height rising abruptly from the plain; the whole bathed in brilliant sunlight. Of the hills one, conspicuous by the steepness of its slopes, is crowned with a building, the ancient church of St. Thomas Mount, which for nearly four centuries has been a landmark to mariners. Low sandhills by the mouth of a small river, which expands near the shore into a lagoon, from the site of the early Portuguese settlement of Santhome, which was a fortified town of wealth and importance before ever the British East India Company was constituted or Fort St. George founded. Save for the tall spire of its lately rebuilt Cathedral, Santhome can have changed little in its sea aspect during two hundred years. At the end of the seventeenth century its fortifications had already been demolished, and the almost ruined town, though still inhabited by Portuguese, was governed by the servants of the Mogul.

Three miles north of Santhome is Madras itself. Not till the city comes into view are the changes apparent that have been wrought by the hand of man. A noble marina now skirts the shore from Santhome. The towers and minarets of the public building at Chepauk rise among the trees. The traveller is borne past the mouth of a river, closed, except during the rains, by a bank of the sand thrown up by the eternal surf. It is spanned by a girder bridge over which is seen the green-sward of the Island, an area sacred to martial exercises, polo and gymkanas. The Island is formed by two branches of the river, or rather by two separate streams having a common outlet to the sea. Next is passed historic fortress of St. George, the spire of its venerable church towering above the white colonnaded buildings of the eastern front, and the British Flag floating from the tall mast at the sea Gate. Not so long ago, the waves washed the face of the fortifications, but with the construction of the modern harbour the ever travelling sand has banked up against, its southern pier and the foreshore has advanced until the Fort looks out on the ocean across a wide expanse of solid ground.

Passing the splendid pile of the High Court, which bristles with domes and gilded minarets, and is surmounted by a lighthouse, the voyager enters a square artificial harbour, and sees beyond its jetties and warehouses a mile-long line of public buildings and mercantile offices. Behind this line, though hidden from view, is a square mile of densely populated area, covered with a network of narrow streets and squalid slums, constituting the city proper. Known almost from its origin as Black Town it has lately received the more euphonious name of George Town, in memory of a visit paid by the Sovereign when Prince of Wales. North of George Town are the suburbs of Royapuram and Tondiarpet, and west of it those of Vepery and Purasawalkam, with Kilpauk farther in the background. West of the Island are Egmore and Chetput, districts bounded on the south by the winding course of the river now known as the Cooum. South of its placid backwater, which resembles a lake more than a river, lie Government House and Park, and the thickly populated Moslem quarter of Triplicane; while to the westward is situated the residential district of Nungambakkam. South of Nungambakkam and Triplicane are Teynampet and Mylapore respectively, the later embracing Santhome. Yet farther south is the suburb of Adyar, on the picturesque banks of the river of the same name. The chief residential districts for Europeans are those of Egmore, Chetput, Nungambakkam Teynampet and Adyar, all occupied by snow-white pillared mansions, each standing in





A view of the N. S. C. Bose Road



The Gandhi Statue, Marina

its own spacious and umbrageous-compound.

Two hundred years ago, Madras existed on a scale far smaller. The Fort, less than half its present size, was the European town: the native city, since swept away, was contiguous to it on its northern side. George Town was a sparsely populated suburb, occupied by gardens and 'garden-houses', whither the Company's servants retired for rest and relaxation. The districts to the westward were marked by tiny villages, centres of agricultural areas held by the Company on precarious grants from the government of the Country, while everything south of Triplicane was native territory, over which the British had no dominion."

Madras, then and now

We have recorded how a cluster of villages had integrated to form the City of Madras. Madraspatnam with Fort St. George as its nucleus, has absorbed the surrounding villages with the passage of time. Naturally, 50 years ago the city was described as one of 'magnificent distances'.

The western part of the city had no fewer than ten irrigation tanks. The area was cultivated with paddy and cocoanut. The Corporation Divisions in which the tanks were located are given below:—

Sl. No.	Name of the Tank	Division No. & name
1	Vyasarpadi Tank	31 Perambur
2	Perambur Tank	35 Thiruvikanagar
3	Peravallur Eri	43 Agaram
4	Madavakkam Tank	46 Nammalvarpet
5	Chetput tank or Tangal	51 Shenoynagar
6	Spur Tank	53 Chetput
7	Nungambakkam Tank	55 Sevagram & 91 Aminjikarai
8	Long Tank	56 Thousandlights west 94 Satyamurthinagar 95 Rajajinagar
9	Kottur Eri	99 Guindy
10	Tank (Kalikundram)	

The growth of Madars City resulted in a radical change in the use of land. The pressure on land was mainly residential buildings. Later land was needed for industrial purposes also which led to the rise in the value of lands and gradually drove agriculture out of the city. The stretches of green fields and vacant grounds between Mylapore and Triplicane, Mylapore and Nungambakkam, Mylapore and Adyar and all round Chetput with the main roads running through them like reddish ribbons, have disappeared. Every inch of the intervening space has been built up. The irrigation tanks which still exist and used for cultivation are 1. Vyasarpadi tank, 2. the Peravallur Eri and 3. the Tank (Kalikundram). The rest have been effaced. Ponds and low-lying grounds are also disappearing having been used for residence. In the near future all of them will disappear from the topography of Madras.

The temple survey of Census in 1961 has shown there are about 300 temples in Madras City. By the side of some of the important temples, tanks are found. Of these the beautiful Kapaleeswarar tank in Mylapore with a fine flight of stone steps on all sides and a Mandapam in the centre, deserves mention.

Soil

Over a large part of the city, the soil is alluvial and in scattered areas gravelly soil also is found. It becomes more common in the western and southern ends. The coastal areas and tanks of the Cooum and Adyar are saline and sandy. Sub-soil is generally black clay with varying stiffness at different depths. With the characteristic hydrological conditions common to deltaic sea coasts, the sub-soil water level is generally indifferent in quality and is rather saline.

Sea waves and currents

As already pointed out, Madras City has 12 miles of sea-coast. It is flat and sandy for the first half a mile from the shore. The bed of the sea is 6 to 7 fathoms or 42′ deep. It slopes further in gradual stages for a distance of 3.5 miles from the coast, the depth being only 10.5 fathoms or 63′. The difference of levels between high and low tide level is 3′ only. Both the principal currents flow parallel to the coast. The first from the north sets in about the middle of October and continues till February or till such time as the along shore winds begin to blow, when the second current sets in from the south. This current ceases

by about August when variable currents set in and continue till the burst of the north-east monsoon in the middle of October. The two principal currents must be caused by the winds. The velocity at full strength is computed at three miles per hour.

Discharge of sand is regulated by sea waves and currents. There are two classes of waves in the east; those due to the south-west monsoon breaking on the coast with a northerly trend, and those due to the north-east monsoon with a southerly trend. Hence the sand is made to move towards north in one season and south in another. In the former period the sand is obstructed by the Madras Harbour and is deposited to its south. A part of the sand finds its way into the harbour necessitating dredging operations in order to prevent the silting up of the harbour. This accounts for the conspicuous sandy belt south of the harbour and a general shift of the shore line eastward up to the mouth of Adyar. An opposite effect, due to the north-east monsoon, should naturally be expected. But, between the two winds, the southerly ones are more dominant since they blow more powerfully and for a longer time.

It was once feared that the sand would envelop the harbour mouth and render it less useful. But dredging at frequent intervals has kept the harbour in good condition. The sand drift has also given to Madras one of the finest sandy beaches in the world. On the other hand, a tendency has been found for the sea to encroach on the Royapuram area to the north of the harbour. This has necessitated the construction of protection walls along the shore to the north of the harbour.

Climate

Madras has a warm climate which is tropical maritime monsoon type. The place is affected by both south-west and north-east monsoons, the latter being more active. The cycle of seasons in the city is akin to the pattern for the country as a whole. The corresponding four seasons are described below:

1 The cold weather season - January to February
2 The hot weather season - March to May
3 The south-west monsoon season - June to September
4 The post monsoon season (North east monsoon or Rainy season) - October-December

During April-May and October-December, cyclonic storms which form in the Bay of Bengal, occasionally affect the weather of Madras and cause heavy rain sometimes resulting in flood. Two other important features are the thunderstorms which occur mainly during the months April to October and the pronounced sea breeze during the same period. There have been many violent cyclones. In the days prior to the construction of harbour, the shipping in the unprotected sea was frequently and violently affected.

The observations that follow are based on the climatalogical table (Table 2-1 given at the end of the chapter), prepared by Meteorological Department, for the period 1881 to 1940. However, the data collected for the years 1951 to 1961 are separately shown in the Tables 2-2 to 2-5.

Temperature

Madras is in the tropics. It is just about the sea level. Temperature of the region is naturally bound to be high. But these factors are counterbalanced to a considerable degree by the city's proximity to the sea and the landward wind from the sea. May is the hottest month with the mean temperature of 91 °F, mean daily maximum temperature of 101 °F and mean monthly highest temperature of 107 °F. January is the coolest month with a mean temperature of 76°F, mean daily minimum temperature of 67 °F and mean monthly lowest temperature of 63°F. The annual range of monthly mean daily temperature is 17°F while the annual extreme range of temperature i. e. the difference between the means of the highest and lowest temperature recorded in a year is 46°F. The mean daily average range is high 17°F to 20°F in the comparatively dry season from January to June. The maximum highest temperature ever recorded was 113°F on 21st may 1910 and the lowest minimum temperature of 57° on 11th December 1895, and 29th January 1905. The maximum temperature of the day occurs generally between 1 and 2 p. m. but in the hot weather months it may occur round about midday, just before the sea breeze sets in. The minimum temperature of the day usually occurs just before sunrise.

Humidity

Mean relative humidity is high throughout the year, and varies from about 65% in May-July to about 80% in October-December. June is the month of lowest relative humidity. Relative humidity generally increases by 20 to 30% with the onset of the sea breeze.

Rainfall

The mean annual rainfall is 50" i.e. 127 cm and the mean number of rainy days, (i.e. days with 10 cm. or more of rain) is 57. About two thirds of annual rainfall, about 31", occurs during the north east monsoon period, October to December. The rainiest months are October and November which together get 26" or 66 cm with 22 rainy days. June to September which is the season of the south-west monsoon rains throughout the greater part of India, get only 15" or 38 cm. with about 25 rainy days. The least rainy months are from February to April. The rainfall for each month or for the whole year is by no means constant from year to year. An idea of its variability can be had from the fact that the wettest month, November has recorded a rainfall of 43" in 1918 but only 0.2" in 1904. Again the highest rainfall recorded was 84" in 1943 and the heaviest rainfall in 24 hours was 10" on 10th December 1901.

Prevailing winds

The chief climatic features of Madras is the sea breeze during April to October which provides some relief in otherwise uniformly warm and moist climate. During this period when the prevailing wind in the morning is westerly, the sea breeze sets in as a gusty ESE to SSE, the wind of an average speed of about 10 miles per hour. At about midday in April and as the season progresses it sets in at a later hour till in October when it sets in at about 2 p. m. From November to March, the prevailing wind is from north-east to east which is from the direction of the sea. Thus there is no change of wind during the day as in the summer season

Thunder and cyclonic storms

Madras like other places on the coast is subject to severe cyclones and storms especially during the currents of monsoon winds. Thunder storms occur during the period May to October. They occur generally towards the evening after 4 p.m. during May to August. During the other months they occur late in the night or early in the morning. Some of the thunderstorms are accompanied by severe squalls of rain in which speed of the wind may reach 50 to 80 miles per hour. May, October and November are the months in which Madras is exposed to the danger of cyclonic storms which form in the Bay of Bengal and move west or north-west towards the east coast. A number of cyclones have hit the city in the past, the maximum speed of the wind recorded during one such storm being 85 miles per hour. On an average one cyclonic storm or depression may affect the city in a year. It is of interest to note that during 60 years, 1891 to 1940, 30 cyclonic storms from the Bay of Bengal crossed the coast within 150 miles of Madras City. During the period, 1941 to 1961, 18 cyclonic storms or depressions crossed the coast between Cuddalore and Nellore. After 1943, floods have occurred in Madras City in November, 1960. Winds of gale force blew over the city on the afternoon of 20th November 1960 with the passage of a cyclonic storm close to Madras. The maximum wind speed recorded was 85 miles per hour. Persistent heavy rains resulted in disruption of rail and road traffic on several places with floods in the rivers, Cooum and Adyar.

The climate of Madras has been described as three months hot and nine months hotter. But it does not have sudden variations of heat and cold like other places in India. The proximity to the sea distinguishes Madras from the cities in the interior regions. The heat of summer months does not touch that high degree as in north India, since it is mitigated by the cool winds of the sea. The cooler months are really never cold, the mean temperature of December-January being 76°. The Spanish priest named Dominic Navarettee who visited Madras about 1678 admires its climate as 'excellent' and observes that 'any nice man may live here'. Mrs. Kindersley who visited Madras in 1765 has recorded as follows: "The heat here is excessive, but the climate, for India, is esteemed healthy, and people frequently come here for the recovery of their health from Bengal; for the soil is dry, and the benefit of the sea breeze, which constantly blows from between twelve and

one at noon till the same time at night, is a great advantage".

The city in its earlier days was not so congested as Calcutta and Bombay which had natural obstacles to lateral extension. So gardens and groves were a common feature all over the city. The Imperial Gazetteer of India, 1908 alludes to its garden houses thus:

"Most of the roads in this part run between avenues, and are flanked by frequent groves of palms and other trees; the shops in the principal thoroughfare, the wide Mount Road, though many of them are imposing erections, often stand back from the street with gardens in front of them; the better European residences are built in the midst of compounds which almost attained the dignity of parks; and rice fields frequently wind in and out between these in almost rural fashion. Even in the most thickly peopled native quarters such as Black Town and Triplicane there is little of the crowding found in many other Indian towns, and houses of more than one storey are the exception rather than the rule."

Thomas Salmon who visited Madras by the end of 1699 has described the Avenue trees and gardens with mangoes, coconuts, guavoes, orange trees etc. where everybody has the liberty of walking, and may purchase the most delicious fruits for a trifle. Charles Lockyer who landed in Madras in 1702 writes: "The streets are straight and wide, paved with bricks on each side; but the middle is deep sand for carts to pass in. Where no houses are, causeways with trees on each side supply the defect; thus being always green render it pleasant to those who otherwise must walk in the sun". These observations make it clear that the area occupied by city was from the early times known for its pleasant scenery and that every main road was flanked by fine avenue trees and canopied by green boughs and branches. The People's Park, the Napier Park, the Horticultural gardens, the Garden Houses, the Rajbhavan, the Theosophical Society Campus are some of the examples.

The indigenous trees found at the city include, neem, mango, tamarind, rain-tree, vagai, banyan and pipal. There are coconut palm groves which are found scattered here and there. Beyond the mouth of the Adyar in the south and Tondiarpet in the north on the sea coast are stretches of casuarina plantations which supply firewood to the city.

House gardening is not common. Some gardening is found in Kilpauk, Chetput, Nungambakkam, part of Mylapore, Mambalam and newly built up areas with bungalows where there is enough space. House gardening is mostly practised by persons in higher income groups. Shortage of water and lack of space are some of the factors which do not encourage house gardening on a larger scale.

Fauna

The area is not rich in fauna. The common varieties of domesticated animals that are found are cows, oxen, buffaloes, sheep, goats, pigs, donkeys, dogs and cats. The other kinds of animals found are rats, jackals, foxen, rabbits reptiles, monitar lizards and garden squirrels. In the Guindy Raj Bhavan Gardens are found herds of bucks and spotted deer.

The avifauna include fowls, ducks, crows, parrots, pigeons, mynah, koel, sparrows, kites, vultures and water birds like snipes and storks.

The marine fauna of the city can be classified under two heads: The fauna of the sandy beach and fauna of the Sea. The most noticeable on the sandy beach is the crab, ocypodaceraloph thalma running with lightning rapidity and eluding with adroitness any pursuer, by getting into water or entering one of its holes. Philyra Scabriuscula, a tiny crab seen when waves recede dives into the mud. One large Eunicid, Eunice tentaculata, fairly abundant in sand is worth mentioning here.

Fauna of the sea

The prawns Penalus indicus and P. Carinatus, are commonly caught by fishermen. The sharks which are open seadwellers are powerful swimmers. Large catches of mackerel, scomber, microlepidotus, are made every year. The giant mackerel, Cybium gutatam also known as the seer is sometimes found in large numbers. There are also sea snakes. The following is the list of common fish found in the sea.

Mullets	Sharks
Silver Bellies	Rays
Ribbon fish	Skates
White bait	Dussumeria

Jew fish	Rock cod
Horse Mackeral	Grabs
Seer	Pellona
Pomfrot	Perches
Lactarius	Lethrius
Flying fish	Engraylis
Sardines	Lobster
Sabre fish	Barracuda
Hilsa	Tunny
Indian Salmon	Leather jackets
Cookup	Breams
Catfish	Snappers
Synagris	Borito
Soles	Polynemus
	Crabs and
	Prawns and
	miscellaneous
	fishes.

The brackish water fauna of Madras is said to confine to the Cooum and Adyar. These two waterways are connected with the sea during the rainy months only and are separated by means of sandbars during summer. During the rainy season they are subject to tidal action and several marine animals get carried for some distance up the water courses. The salinity of the water is highly variable not only from month to month of the year but also from place to place. It is the highest from January to March when the rains cease but the bars remain open giving rise to a daily flow of sea water. The salinity is as high as 33.44 per mille recorded in February 1933. When the bar closes in April-May there is a rapid fall, the salinity decreases to 17.25 (recorded in April 1933). The temperature also shows great fluctuations. It is the lowest during the rainy months being about 25° C, when the bar is open, but may rise to 33.8° C in isolated pools near the water edge. More than 200 species of animals have been recorded from the brackish waters. The important ones are Prawns, Chanos, Mullets, Etroplus Surtensis, Cat fish, Tilapia, Jelly fish and Watersnakes. Before 1920, a fish farm was located at Perambur where both Gourami and Etroplus bred freely. Later on, in 1927 it was shifted to Chetput, to the site where the Brickfield of the Public Works Department of Madras was located. A site measuring 13 acres with suitable ponds holding a perennial supply now constitutes the Fish Farm. The varieties of fish bred in this Farm are: Gourami, Calta, Ophiolephalus Stiatus, Tilapia Mossambica, Etroplus Surtensis and a few other fresh water varieties.

Even today the city with its garden houses and palm groves, its parks and play grounds, and its fine avenues can well deserve the epithet "The City Beautiful".

TABLE 2–1

CLIMATOLOGICAL TABLE

Station - MADRAS Lat. 13° 04′N. Long. 80° 15′E Height above M.S.L. 51 ft.
Based on observations from 1881 to 1940

Month	Pressure	Air Temperature										Humidity		Cloud Amount	
				Mean of		Mean of									
	Mean at station level.	Mean Dry Bulb	Mean Wet Bulb	Daily Max.	Daily Min.	Highest in the month	Lowest in the month	Highest recorded	Date and year	Lowest recorded	Date and year	Relative Humidity	Vapour pressure	All clouds	Low Clouds
	mb	oF	oF	oF	oF	oF	oF	oF		oF		%	mb	Tenth of sky	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Jan.	I 1013.5	72.6	70.0	85.3	67.1	87.0	62.9	91	31	57	29	87	23.7	3.9	2.7
	II 1010.7	79.6	71.1	...	...	...	...	...	1894	...	1905	64	22.0	4.6	2.1
Feb.	I 1012.3	74.9	71.3	88.3	68.4	90.8	63.5	98	18	59	12	83	24.2	2.8	2.4
	II 1009.3	81.6	73.7	...	...	...	...	...	1927	...	1934	67	24.5	3.0	1.2
Mar.	I 1010.5	79.4	74.9	91.4	72.4	94.7	66.7	102	25	62	9	80	26.5	2.6	2.1
	II 1007.2	84.4	76.1	...	...	...	...	...	1892	...	1908	67	26.7	2.8	0.6
Apr.	I 1008.0	84.8	78.4	95.5	78.1	98.0	72.6	109	27	68	3	74	29.6	4.2	2.5
	II 1004.3	86.7	79.0	...	...	...	...	...	1908	...	1939	70	30.1	4.7	0.7
May	I 1004.8	87.8	78.1	101.3	81.7	107.1	75.7	113	21	70	14	63	28.1	4.3	1.0
	II 1001.3	89.9	80.2	...	...	...	...	...	1910	...	1886	64	30.6	5.8	0.7
June	I 1003.5	87.2	76.5	99.6	81.1	105.6	75.0	110	2	69	16	59	24.7	6.0	0.3
	II 999.9	89.9	78.6	...	...	...	...	...	1939	...	1909	60	28.0	8.5	3.6
July	I 1004.0	84.3	75.6	96.3	79.3	101.9	73.8	106	4	71	4	65	25.5	7.1	0.4
	II 1000.4	88.8	77.9	...	...	...	...	...	1915	...	1913	61	27.5	9.2	4.5

TABLE 2-1 (Contd.)

CLIMATOLOGICAL TABLE

Station – ***MADRAS*** *Lat. 13° 04′N. Long. 80° 15′E Height above M.S.L. 51 ft.*
Based on observations from 1881 to 1940

Month	Pressure: Mean at station level.	Mean Dry Bulb	Mean Wet Bulb	Mean of Daily Max.	Mean of Daily Min.	Air Temperature Mean of Highest in the month	Air Temperature Mean of Lowest in the month	Highest recorded	Date and year	Lowest recorded	Date and year	Humidity: Relative Humidity	Humidity: Vapour pressure	Amount All clouds	Amount Low clouds
	mb	oF	oF	oF	oF	oF	oF	oF		oF		%	mb	Tenth of sky	Tenth of sky
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Aug.	I 1005.1	82.8	75.8	94.8	78.0	99.8	73.2	104	5	69	22	71	26.2	6.8	0.8
	II 1001.4	88.5	78.3	...	...	...	...	...	1918	...	1935	63	28.2	8.3	3.3
Sep.	I 1006.3	82.4	76.5	93.9	77.2	98.8	72.7	102	19	69	15	75	27.6	6.2	1.6
	II 1002.5	86.3	78.9	...	...	...	...	...	1883	...	1884	71	30.2	7.0	2.0
Oct.	I 1008.8	80.5	76.7	90.1	75.0	95.9	70.6	102	1	62	28	83	28.5	5.7	2.0
	II 1005.6	84.2	77.3	...	...	...	...	...	1920	...	1889	73	28.7	6.8	2.0
Nov.	I 1011.1	76.8	73.8	85.4	71.9	89.5	66.1	94	3	59	26	86	26.7	6.0	3.7
	II 1008.1	80.0	74.6	...	...	...	...	...	1909	...	1901	77	26.7	7.6	3.3
Dec.	I 1013.0	73.9	71.2	84.1	68.9	86.2	63.8	91	5	57	11	87	24.5	5.0	3.3
	II 1010.4	78.8	71.6	...	...	...	...	...	1909	...	1895	69	23.1	6.3	3.1
Annual Total or Mean	**I 1008.4**	**80.6**	**74.9**	**92.2**	**74.9**	**107.8**	**61.5**	**113**	...	**57**	**76**	**76**	**26.3**	**5.1**	**1.9**
	II 1005.1	**84.9**	**75.6**	...	...	...	...	...	...	...	...	**67**	**27.2**	**6.2**	**2.3**
Number of	**I 50**	**50**	**50**	**60**	**60**	60	**60**	**60**	...	**60**	...	**50**	**50**	**50**	**5**
Years	**II ...**	**5**	**5**	...	...	...	...	...	...	...	...	**5**	**5**	**5**	**5**

TABLE 2-1 (Contd.)

CLIMATOLOGICAL TABLE

*Station - **MADRAS** Lat. 13° 04′N. Long. 80° 15′E Height above M.S.L. 51 ft.*

Based on observations from 1881 to 1940

Month	RAINFALL						Mean wind speed	WEATHER PHENOMENA*					
								No. of days with					
	Mean monthly total	Mean No. of rainy days	Total in wettest month with year.	Total in driest month with year.	Heaviest fall in 24 hrs.	Date and year.		Precipitation .01" or more	Thunder	Hail	Dust-storm	Squall	Fog
	17	18	19	20	21	22	23	24	25	26	27	28	29
	in.		in.	in.	in.		mph.						
Jan.	I 1.41	1.7	9.61	0	8.38	15	11.0	3	0.2	0	0	0	5
	II ...	...	1915	...	...	1915	...	...	...	...	...	...	...
Feb.	I 0.41	0.7	6.41	0	4.85	5	9.5	1.8	0.3	0	0	0	1.1
	II ...	...	1929	...	...	1929	...	...	...	...	...	...	...
Mar.	I 0.29	0.4	2.86	0	2.54	14	9.6	2	0.7	0	0	0.1	1·0
	II ...	...	1925	...	...	1925	...	...	...	...	...	...	...
Apr.	I 0.61	0.9	7.52	0	3.29	19	11.1	2	2	0	0	0.4	0
	II ...	...	1909	...	...	1909	...	...	...	...	...	...	...
May	I 1.03	1.1	9.49	0	5.22	5	11.8	1.5	3	0	0.2	1.7	0
	II ...	...	1909	...	...	1909	...	...	...	...	...	...	...
June	I 1.86	3.7	7.67	0.13	2.33	27	11.9	8	6	0	0	3	0
	II ...	...	1886	1913	...	1931	...	...	...	...	...	...	...
July	I 3.60	6.8	8.87	0.59	4.58	28	10.8	13	3	0	0	3	0
	II ...	...	1915	1885	...	1910	...	...	...	...	...	...	...
Aug.	I 4.58	7.9	13.24	0.72	3.09	30	10.7	13	7	0	0	3	0
	II ...	...	1894	1913	...	1934	...	...	...	...	...	...	...

TABLE 2–1 (Contd.)

CLIMATOLOGICAL TABLE

Station - MADRAS Lat. 13° 04′ N. Long. 80° 15′E Height above M.S.L. 51 ft.
Based on observations from 1881 to 1940

Month	RAINFALL							WEATHER PHENOMENA*					
								No. of days with					
	Mean monthly total	Mean No. of rainy days	Total in wettest month with year.	Total in driest month with year.	Heaviest fall in 24 hrs.	Date and year.	Mean wind speed	Precipitation .01" or more	Thunder	Hail	Dust-storm	Squall	Fog
	17	18	19	20	21	22	23	24	25	26	27	28	29
	in		in	in	in		mph						
Sep.	I 4.68	7.0	11.01	0.47	3.95	18	10.0	13	9	0	0	2	0
	II ...	...	1897	1920	...	1881	...	...	...	...	...	...	...
Oct.	I 12.04	10.7	28.13	0.44	9.20	31	8.7	15	9	0	0	2	0.2
	II ...	...	1913	1918	...	1888	...	...	...	...	...	...	...
Nov.	I 13.96	11.1	42.85	0.20	9.30	16	12.3	14	5	0	0	2	0.2
	II ...	...	1918	1904	...	1922	...	...	...	...	...	...	...
Dec.	I 5.45	5.4	18.55	0.01	10.30	10	12.5	9	0.7	0	0	0.4	0.4
	II ...	...	1903	1920	...	1901	...	...	...	...	...	...	...
Annual Total	I 49.92	57.4	78.92	21.74	10.30	...	10.8	95	46	0	0.2	18	3
or Mean	II ...	...	1884	1904	...	...	...	...	...	...	...	...	...
Number of	I 60	60	60	60	60	...	15	10	10	10	10	10	10
Years	II ...	...	...	...	...	...	...	...	...		...	...	...

TABLE 2 – 1 (Contd.)

CLIMATOLOGICAL TABLE

Station - MADRAS Lat. 13° 04′N. Long. 80° 15′E Height above M.S.L. 51 ft.

Based on observations from 1881 to 1940

WIND

Month		No. of days with wind force				Percentage No. of days of wind from								
		39 or more mph	13–38 mph	1–12 mph	0	N	NE	E	SE	S	SW	W	NW	Calm
		30	31	32	33	34	35	36	37	38	39	40	41	42
Jan.	I	0	7	24	0	9	18	13	2	1	3	13	41	1
	II	0	15	16	0	12	56	25	6	1	0	0	0	0
Feb.	I	0	2	26	0	3	6	15	8	4	16	24	23	1
	II	0	10	18	0	1	15	40	35	9	0	0	0	0
Mar.	I	0	4	27	0	2	2	5	6	18	33	23	10	2
	II	0	13	18	0	0	3	24	50	21	1	0	0	1
Apr.	I	0	7	22	1	1	1	2	7	39	36	9	3	3
	II	0	16	14	0	0	0	15	59	24	1	1	0	0
May	I	0	11	20	0	1	1	1	4	36	35	18	3	1
	II	0	19	12	0	0	1	5	52	33	5	1	3	0
June	I	0	14	16	0	0	1	0	1	7	45	45	2	1
	II	0	15	15	0	0	1	10	38	30	7	13	1	0
July	I	0	11	20	0	0	0	1	1	3	43	50	3	0
	II	0	11	20	0	0	2	10	34	22	8	21	3	0
Aug.	I	0	10	21	0	1	1	1	1	6	45	42	3	1
	II	10	10	21	0	3	1	18	38	15	5	17	3	0

TABLE 2 – 1 (Contd.)

CLIMATOLOGICAL TABLE

Station – MADRAS Lat. 13° 04' N. Long. 80° 15'E Height above M.S.L. 51 ft.
Based on observations from 1881 to 1940

Month		WIND: No. of days with wind force				WIND: Percentage No. of days of wind from								
		39 or more mph	13–38 mph	1–12 mph	0	N	NE	E	SE	S	SW	W	NW	Calm
		30	31	32	33	34	35	36	37	38	39	40	41	42
Sep.	I	0	6	24	0	1	1	1	1	7	42	40	7	1
	II	0	8	22	0	2	2	13	48	19	6	6	4	0
Oct.	I	0	5	25	1	5	3	5	3	6	21	30	26	2
	II	0	10	21	0	8	20	27	25	10	1	4	5	0
Nov.	I	0	9	21	0	15	18	7	2	2	3	12	41	1
	II	10	15	15	0	27	44	13	6	1	1	1	6	1
Dec.	I	0	11	20	0	18	23	7	1	1	1	6	44	1
	II	0	22	9	0	35	51	13	0	0	0	0	1	0
Annual Total	**I**	**0**	**97**	**266**	**2**	**5**	**6**	**5**	**3**	**11**	**26**	**26**	**17**	**1**
or Mean	**II**	**0**	**164**	**201**	**0**	**7**	**16**	**18**	**34**	**15**	**3**	**5**	**2**	**0**
No. of	**I**		**5**								**19**			
Years	**II**		**5**								**5**			

I — Observations at 0830 Hrs. I. S. T.

II — do 1730 do

* Frequencies above 2.0 are given only in whole numbers

TABLE 2-2

Table showing the mean (maximum and minimum) highest and lowest temperature recorded during 1951—61

District: MADRAS CITY

Station: NUNGAMBAKKAM

Month	1951 Farenheit				1961 Mean Maximum		Mean Minimum		Highest		Lowest	
	Mean Maximum	Mean Minimum	Highest	Lowest	Farenheit	Centigrade	Farenheit	Centigrade	Farenheit	Centigrade	Farenheit	Centigrade
1	2	3	4	5	6	7	8	9	10	11	12	13
January	83.3	67.9	85	63	83.1	28.4	69.5	21.4	87	30.5	64	18.0
February	85.2	65.8	88	62	86.0	30.0	69.5	21.4	88	31.3	66	19.0
March	89.7	72.9	96	66	87.4	31.9	73.8	23.2	94	34.5	69	20.7
April	90.8	77.4	96	72	93.2	34.0	78.3	25.7	97	36.3	75	23.8
May	95.2	81.1	101	75	97.2	36.2	80.4	26·9	107	41.8	79	25.1
June	99.3	82.4	102	78	95.2	35.1	78.8	26.0	102	39.1	70	21.0
July	94.5	78.9	103	74	92.3	33.5	76.6	24.8	98	36.5	71	22.0
August	95.4	78.3	100	72	89.8	33.2	75.7	24.3	95	34.8	72	22.3
September	92.0	77.7	98	74	89.8	33.2	76.1	24.5	94	34.7	73	22.3
October	92.8	77.5	98	74	89.1	31.7	75.4	24.1	92	33.5	71	21.7
November	86.4	74.9	95	71	84.2	29.0	72.3	22.4	87	30.3	65	19.2
December	83.7	69.1	89	65	82.2	27.9	69.4	21.0	82	29.9	63	17.3
Annual	1088.3	903.9	...	...	1069.5	384.1	922.8	285.7	...	...	...	...
Average	90.7	75.3	...	...	89.1	32.0	76.9	23.8	...	...	...	...

TABLE 2–3

Humidity in the City

Percentage relative humidity for the months of the years 1951 and 1961

Year	January	February	March	April	May	June	July	August	September	October	November	December	Total	Average
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1951	74	70	74	73	64	55	68	69	73	73	77	69	839	70
1961	83	82	80	74	65	67	75	81	76	82	80	79	924	77

TABLE 2-4

Rainfall in Madras City for the months of the years 1951 and 1961.

Months	1951 No. of rainy days	1951 Inches Monthly rainfall	1951 Heaviest rainfall in 24 hours	1961 No. of rainy days	1961 Monthly rainfall Inches	1961 Monthly rainfall m. m.	1961 Heaviest rainfall in 24 hours Inches	1961 Heaviest rainfall in 24 hours m. m.
1	2	3	4	5	6	7	8	9
January	0	0.09	0.09	2	2.77	70.4	1.70	43.1
February	0	0.00	0.00	1	0.52	13.2	0.52	13.1
March	0	0.01	0.01	0	0.00	0.0	0.00	0.0
April	4	5.02	3.95	0	0.00	0.0	0.00	0.0
May	0	0.03	0.03	1	0.87	22.2	0.80	20.2
June	3	0.95	0.36	5	3.90	99.2	2.07	52.5
July	9	3.98	1.43	12	8.50	215.9	2.39	60.7
August	10	8.39	2.52	16	10.11	256.8	1.84	46.7
September	6	2.87	1.23	9	7.37	187.3	1.60	40.8
October	5	2.91	1.26	11	8.07	204.9	2.18	55.3
November	9	12.72	6.48	7	6.94	176.4	2.77	70.4
December	2	0.60	0.47	2	0.46	11.8	0.26	6.5

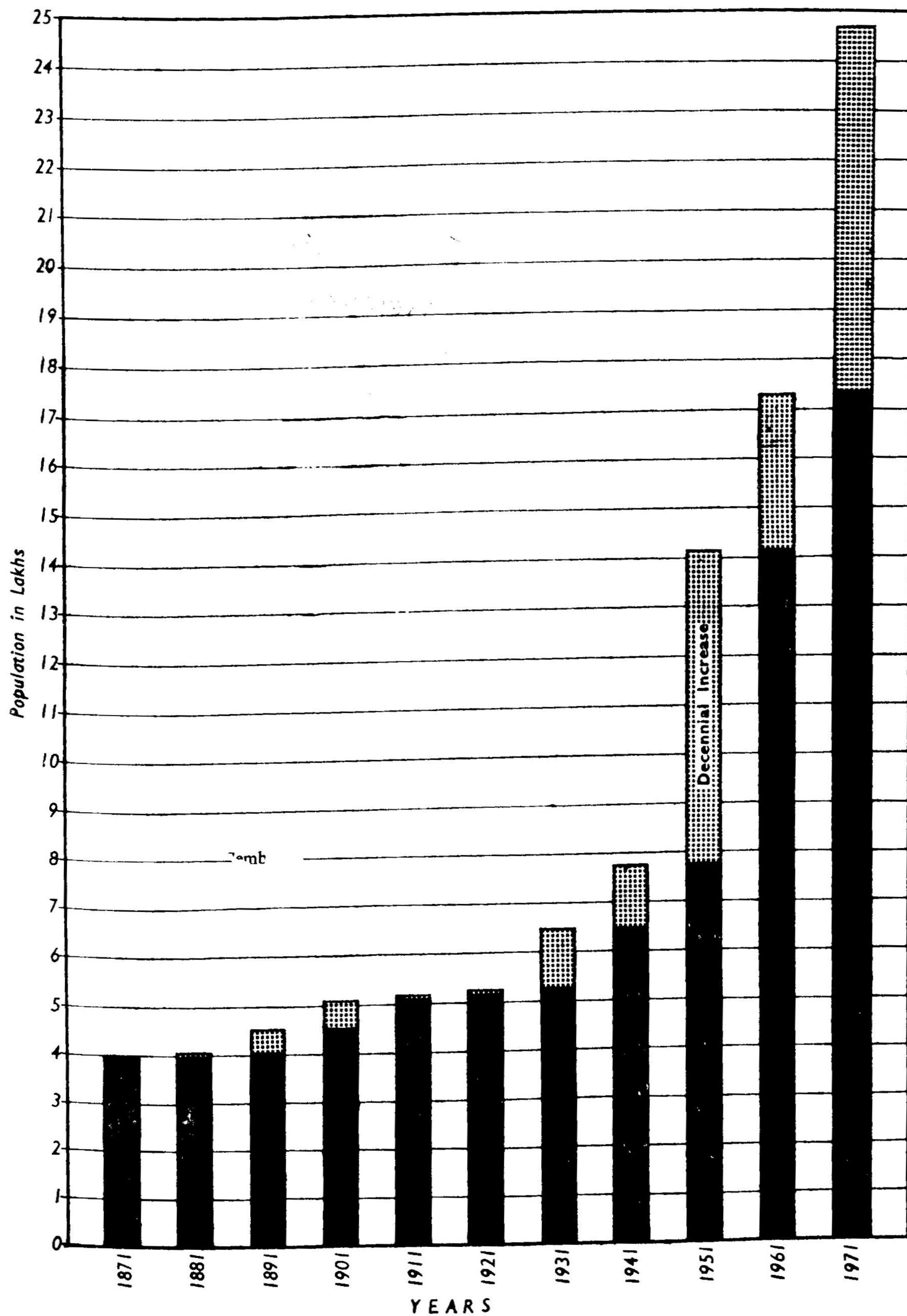
TABLE 2-5

Wind directions in the city

Number of days from various directions during the years 1951 and 1961

	Year	Directions: Calm	North	North-east	East	South-east	South	South-west	West	North-west	Total No. of days.
1	2	3	4	5	6	7	8	9	10	11	12
Annual	1951	43	30	22	7	6	45	73	81	58	365
Total mean	1961	19	38	45	3	5	28	128	78	21	365

Growth of Population of Madras City during 1871 - 1971



CHAPTER III

POPULATION

Area and population

Madras City, as it is constituted today has an area of about 49 square miles. In 1871, its area was nearly 27 square miles. No accurate statistics can however, be had for the earlier period. It can be said that the city was made up of 36 distinct villages in 1871. For Municipal Administration, it was divided into eight Municipal divisions which were further divided into seventeen wards and these again were subdivided into 59 sections.

At the time of 1881 Census, there were only eight divisions. But the number of wards increased from 17 (in 1871) to 20. In 1891 the area of the city became 29 square miles. Subsequently, certain portions measuring 1.71 square miles which had been transferred from Chingleput District in 1887 to the city were retransferred and the revised area was calculated as 27.29 square miles with only 8 divisions. No change in area was recorded till 1901.

During 1911-1921 the area increased from 27 to 29 square miles. Again during 1921-31 no change in area was recorded. The area increased to thirty square miles, between 1931 and 41. During the period 1941–1951 the city was expanded by a considerable margin from 30 to 49 square miles. Saidapet Municipality and adjoining suburban areas (28 villages) in the south and west in Chingleput district were added to Madras City. No change occurred during 1951 to 1961 except that 50 divisions were divided into 100 divisions.

The following villages of Saidapet Taluk were added to the city during 1941-51 :

TABLE 3–1

Additions to the city in 1941-51

Sl. No.	Name of the village added	Sl. No.	Name of the village added
1.	Sembiam	15.	Periakudal
2.	Siruvallur	16.	Naduvakarai
3.	Peruvallur	17.	Chinnakudal
4.	Chinna Sembarambakkam	18.	Arumbakkam
5.	Aynavaram	19.	Agaram (Vada)
6.	Puliyur	20.	Velacheri (Part)
7.	Saligramam	21.	Urur
8.	Mambalam	22.	Kottur
9.	Kodambakkam	23.	Pallipatty
10.	Saidapet	24.	Kalikundram
11.	Government Farm	25.	Guindy Park
12.	Adyar	26.	Ikkattuthangal
13.	Mullam	27.	Alandur
14.	Aminjikarai	28.	Tirumangalam (Part)

The details regarding the 100 divisions (1961) are as follows :

TABLE 3-2

Division-wise population in Madras City (1961)

Division No	Name of the Division	Persons	Males	Females
(1)	(2)	(3)	(4)	(5)
	Total all Divisions	1,729,141	909,701	819,440
1.	New Washermanpet	23,377	12,260	11,117
2.	Tondiarpet	18,122	9,395	8,727
3.	Grace Garden	16,602	8,646	7,956
4.	Sanjeevarayanpet	15,917	8,155	7,762
5.	Mottai Garden	13,754	7,076	6,678
6.	Narayanappa Naicken Garden	12,865	6,638	6,227
7.	Singara Garden	15,723	8,164	7,559
8.	Royapuram	19,477	9,967	9,510
9.	Meenakshiammanpet	17,187	8,667	8,520
10.	Old Washermanpet	14,324	7,432	6,892
11.	Seven Wells (North)	16,908	8,877	8,031
12.	Amman Koil (North)	13,353	6,926	6,427
13.	Muthialpet	15,584	8,147	7,437
14.	Harbour	16,404	10,091	6,313
15.	Mannady	11,432	6,338	5,094
16.	Amman Koil (South)	10,877	5,705	5,172
17.	Seven wells (South)	16,085	8,296	7,789
18.	Sowcarpet	11,946	7,034	4,912
19.	Kothwal Chavadi	12,894	7,547	5,347
20.	Kachaleeswarar	18,085	10,947	7,138
21.	Korukkupet	17,547	9,268	8,279
22.	Kumaraswami Nagar	18,737	9,678	9,059
23.	Dr. Vijayaraghavalu Nagar	19,977	10,303	9,674
24.	Basin Bridge	13,103	6,927	6,176

TABLE 3-2 (Contd.)

Division-wise population in Madras City (1961)

Division No.	Name of the Division	Persons	Males	Females
(1)	(2)	(3)	(4)	(5)
25.	Kondithope	16,592	8,606	7,986
26.	Peddu Naickenpet	21,954	11,316	10,638
27.	Perumal Koil Garden	15,345	7,900	7,445
28.	Trevelyan Basin	9,951	5,246	4,705
29.	Elephant Gate	10,575	5,577	4,998
30.	Edapalayam	14,674	7,773	6,901
31.	Perambur	22,886	11,891	10,995
32.	Vyasarpadi	22,451	11,649	10,802
33.	Pulianthope	23,787	12,295	11,492
34.	Wadia Nagar	15,191	7,927	7,264
35.	Thiruvika Nagar	18,770	9,816	8,954
36.	Pattalam	10,344	5,332	5,012
37.	Thattankulam	15,172	7,942	7,230
38.	Dr. Besant Nagar	18,060	9,376	8,684
39.	Choolai	15,048	7,849	7,199
40.	Hospital Maidan	18,376	9,521	8,855
41.	Sembiam	20,464	10,520	9,944
42.	Siruvallur	16,078	8,341	7,737
43.	Agaram	15,227	7,922	7,305
44.	Nagamma Ammaiyar Nagar	19,712	10,165	9,547
45.	Ayanavaram	21,951	11,475	10,476
46.	Nammalwarpet	18,148	9,777	8,371
47.	Otteri	18,078	9,356	8,722
48.	Kosapet	17,442	9,023	8,419
49.	Perumalpet	13,403	6,974	6,429
50.	Purasawalkam	15,088	7,741	7,347
51.	Shenoy Nagar	21,450	11,227	10,223
52.	Kilpauk	18,339	10,078	8,261
53.	Chetput	15,395	8,081	7,314

TABLE 3-2 (Contd.)

Division-wise population in Madras City (1961)

Division No.	Name of the Division	Persons	Males	Females
(1)	(2)	(3)	(4)	(5)
54.	Nungambakkam	18,755	10,657	8,098
55.	Sevagram	16,840	8,720	8,120
56.	Thousandlights (West)	18,043	9,177	8,866
57.	Thousandlights (East)	11,987	6,230	5,757
58.	Puduppakkam	14,666	7,556	7,110
59.	Amir Mahal	18,359	9,496	8,863
60.	Royapettah	16,082	8,329	7,753
61.	Gangadhareswarar Koil	15,080	8,110	6,970
62.	Dr. Ambedkar Nagar	15,506	7,970	7,536
63.	Periamet	13,894	7,665	6,229
64.	Park Town	21,950	13,544	8,406
65.	Adikesavapuram	16,015	8,245	7,770
66.	Chintadripet	14,549	7,507	7,042
67.	Egmore	17,834	9,371	8,463
68.	Pudupet	17,167	8,924	8,243
69.	Komaleeswaranpet	13,631	7,245	6,386
70.	Narasingapuram	13,867	7,300	6,567
71.	Nehru Nagar	16,587	8,892	7,695
72.	Thiruvatteswaranpet	17,928	9,430	8,498
73.	Chepauk	15,773	7,962	7,811
74.	Marina	14,847	7,814	7,033
75.	Triplicane	18,390	9,839	8,551
76.	Zam Bazaar	19,110	10,302	8,808
77.	Mirsahibpet	17,996	9,364	8,632
78.	Azad Nagar	18,161	9,635	8,526
79.	Durgapuram	15,816	8,228	7,588
80.	Krishnampet	12,376	6,254	6,122
81.	Teynampet	16,856	8,806	8,050

TABLE 3-2 (Contd.)

Division-wise population in Madras City (1961)

Division No.	Name of the Division	Persons	Males	Females
(1)	(2)	(3)	(4)	(5)
82.	Vivekanandapuram	15,460	8,211	7,249
83.	Madhavaperumal puram	13,004	6,667	6,337
84.	Karaneeswarapuram	16,871	8,840	8,031
85.	Santhome	18,276	8,744	9,532
86.	Mylapore	15,151	7,935	7,216
87.	Beemannapet	18,473	9,548	8,925
88.	Alwarpet	17,230	8,950	8,280
89.	Raja Annamalai puram	24,140	12,328	11,812
90.	Adyar	14,086	7,231	6,855
91.	Aminjikarai	31,663	16,429	15,234
92.	Vadapalani	30,461	16,131	14,330
93.	Thyagaraya Nagar	22,508	11,862	10,646
94.	Sathyamurthi Nagar	23,277	12,100	11,177
95.	Rajaji Nagar	21,777	11,488	10,289
96.	Kamaraja Nagar	27,588	14,377	13,211
97.	Saidapet North	16,661	8,682	7,979
98.	Periapet	19,337	10,139	9,198
99.	Guindy	24,351	13,612	10,739
100.	Saidapet South	20,531	10,675	9,856

The growth of the city in size has been gradual, except for the period 1941 - 51. The reason for this gradual growth is as follows :

Madras is not a pilgrim centre. It did not have much commercial or industrial importance. It did not possess a natural harbour. In this connection it will be interesting to recall the views of Mr.M.W.M. Yeattes I.C.S., the Census Superintendent. of Madras. 1931, on the origin and growth of towns : " Towns take their rise in many ways. The earliest form is the strategic point, when rule is in uncertain, such places are of first importance

and round them grow the earliest permanent non-rural aggregations. Trade routes and markets inevitably sought their protection and consequently communications grew towards such places which ex-hypothesi were nodal points."

The Imperial Gazetteer of Madras, 1908, has commented as follows:

"Even in the most thickly peopled native quarters, such as Black Town and Triplicane, there is little of the overcrowding found in many other towns and houses of more than one storey are the exception rather than the rule. The reason for all this lies in the fact that in Madras, if we except the sea on the east, there are none of the natural obstacles to lateral extension as in Calcutta and Bombay. Land is consequentially cheap and though the population of the city is only two thirds of that of Bombay and only three fifths of that of Calcutta, it has spread itself 5 square miles larger than that occupied by the former and 3 square miles less than that covered by the latter. Though large parts are strictly urban in their characteristics, the city as a whole is in fact rather a fortuitous collection of villages separated from the surrounding country by an arbitrary boundary line, than a town in the usual sense of the word....Some of these villages are rural hamlets to this day showing no signs of urban influence beyond the municipal lamp posts and dust bins with which their streets are dotted."

During the decade 1951–61 the population of the city has recorded an increase of 22.11 per cent. Madras is the third largest city of importance in population. But if Delhi town group is also taken into account, Madras gets only the fourth rank. The growth of population of Madras during 1951–61 is quite normal. But Bombay's growth rate (39.95%) is much higher, and that of Calcutta is much lower (8.48%).

Early estimates of the city's population

A Census was taken in Madras City as early as 1639. For purposes of defence, collection of revenues, and taxes and employment of population in profitable trades and services, the East India Company was anxious to have reliable estimates of population in Indian Settlement. Indirect estimates were made for Fort St. George, (Madras), in 1639 and 1648 by comparing revenues in 1639 and 1648 and for 1646 by adding reported famine deaths of 1647 to the estimate of 1648. The Court of Directors in 1687 estimated the population of Madras as it then was (Fort St. George and villages around) as 3,00,000. How this was arrived at or the precise area covered is far from clear. Extreme 'roundness' of the figure suggests that it was more a guess, than a computation.

Dr. John Foyer was appointed surgeon for duty at Bombay by the end of 1672 shortly after he had taken the degree of M. B. at Cambridge. He estimated the population of Madras as 33,300 in 1673. Enquiries during the 17th century made by Sir William Langhorn, Captain Wilshaw, or Elihu Yale, were in the nature of deductions based on items like revenue and quit rent. The unsettled conditions of the country following the disintegration of the Mogul Empire did not enable systematic computation of the population. An estimate made by the Company's possessions as late as the 1780s, was discounted by H. T. Colebrook.

Sir James Rennel completed his stupendous surveys which helped to relate population to definite territories. Regretting that "in India, no bills of mortality nor registers of births, marriages and burials, afford data for calculation", H. T. Colebrook built up an ingenious system of self-checking inferences based variously on area, density, sample counts, persons per household, leases, ground rent, land under cultivation, area under each village, rent rolls, and the yield and consumption of articles like cereals, pulses and salt.

England began her Census series in 1801 and the Parliament was anxious to ascertain the population of the dependencies. It took some time to plan and carry out systematic Census. The counts taken between 1820 and 1830 may not satisfy the requirements of a modern Census. But they were some of the best estimates that any country could have under comparable circumstances.

The Census of Fort St. George was again taken during 1836 – 37. Only in 1849, the Government of India asked the local governments to prepare, with the aid of their revenue officials, quinquennial returns of population. This inaugurated in Madras, a system of periodical stock

taking of the people which continued down to the time when Imperial Census was ordered in 1871. The first of these returns were taken during the official year 1851-52, the second in 1856-57, the third in 1861-62, the fourth and last in 1866-67. The quinquennial Census of 1871-82 was merged with the Imperial Census of 1871.

Dr. W. R. Cornish, F. R. C. S. Superintendent of Census Operations, Madras, in 1871 has remarked as follows: "Thus it will be seen that within a period of 20 years the population of this Presidency has been counted more or less efficiently on five occasions, and it becomes no cause for surprise that the fifth counting should have involved no more political anxiety to the Government than any of the former enumeration. As remarked by the Madras Government, there is nothing novel in the idea of a Census in this Presidency and there is no reason to anticipate any difficulty in carrying out the wishes of the Government of India."

The various population estimates prior to 1871 as given in Love's "Vestiges of old Madras" are given below:

TABLE 3-3

Population of Madras in the 17th and 18th Centuries

Year	Population	Authority	Remarks
1639	7,000	Deduced from comparison of revenue in 1639 and 1648	Rough approximation
1646	19,000	Deduced from the estimate of 1648 by adding loss during the famine of 1647. O. C. No. 2,046, 9th Oct. 1647	Before famine
1648	15,000	Ct. Bk. Vol. XXII., 21-8-1649	After famine
1670	40,000	Captain Thomas Bowrey	Countries round the Bay of Bengal
1673	33,300	Dr. John Fryer	New Account of East India and Persia
1674	50,000	Sir William Langhorn, O.C. No. 3,792, 20-8-1674	...
1681	200,000	The E. I. Company, Let. Bk. Vol. IX., 22-1-1692	..
1685	300,000	Captain Wilshaw. P. From Eng., Vol. VIII., 12-12-1687	...
1691	400,000	The E.I. Company, Let. Bk., Vol. IX., 22-1-1692	...
1715	100,000	R. F. Norbert	Memories Historiques
1720	80,000	Captain Alexander Hamilton	New Account of the East Indies
1726	100,000	R. P. Ippolito Desideri	Manuscript
1733	100,000	Governor C. M. PittP. to Eng., Vol. X., 1 Jan	...
1791	300,000	Letter from the Principal Inhabitants, P. C. Vol. CL. XVII, 2-2-1791	...
1795	60,000*	The Madras Justices, P. C,, Vol. cxcvii, 7-2-1795	Population of Black Town only

* Perhaps an error for 260,000.

A scrutiny of the above figures will show that all these estimates were gross over-estimates if we consider the 1871 census figure as reasonably correct (397,552). Various explanations have been given from time to time by different authorities in support of the overestimation.

The Superintendent of Census Operations in 1871, commenting on the gross overestimates of 1822 enumeration has remarked as follows. "Probably the conicopolies (enumerators) were paid by the number of persons they were supposed to enumerate." "The estimates of the population of Madras previous to 1867", he states, "had been so various and the direct censuses of 1822 and 1863 were so evidently untrustworthy that it had long been found utterly impossible to arrive at any satisfactory conclusion as to the actual number of people living in the City. Without due knowledge on the point, it was impossible to investigate any question concerning health or efficiently to apply the power of self Government which Madras enjoyed."

Madras Municipal regulations were revised and it was thought advisable to give under Act IX of 1867, the power to conduct a Census to the municipality. The following provisions were included in the Act:

"At such time and in such manner as shall be directed, from time to time, by the Commissioners with the sanction of the Government, an enumeration shall be made of persons who at the time of making such enumeration shall be within the town."

Accordingly, a Census was conducted in 1871 which gave the population of the City as 397,552. Madras had thus plenty of room for expansion within the limits of the municipal boundaries and large areas presented an entirely rural appearance. It therefore, had a natural advantage over other Indian cities like Calcutta or Bombay where only a vertical extension was possible.

Between 1871 and 1881, the population increased by 2.1% only. The population of Madras City from 1871 onwards is given in Table 3-4.

The growth of population has recorded wide fluctuations in the course of ninety years. In 1881 the increase during the previous decade was about 2%. In 1891 and 1901 the rate of growth was one percent per annum. Then a sharp fall was recorded for the decades 1901-1911 and 1911-1921 with 1.8% and 1.6% respectively. In 1931 there was a steep rise viz., 22.8%. The growth rate during 1931-41 was 20.1%. In 1951 the increase was remarkable being 82.1%. Again in the decade 1951-61 the increase was 22.1%.

TABLE 3-4

Growth of population of Madras City during 1871-1961

Year	Population	Decennial Increase	Percentage Variation
1871	397,552	...	...
1881	405,848	8,296	2.1
1891	452,518	46,670	11.5
1901	509,346	56,828	12.6
1911	518,660	9,314	1.8
1921	526,911	8,251	1.6
1931	647,230	120,319	22.8
1941	777,481	130,251	20.1
1951	1,416,056	638,575	82.1
1961	1,729,141	313,085	22.1

The important factors affecting the variation of population are demographic characteristics like birth, death and migration, and to a limited extent, changes in the boundaries of the city. For instance, the increase of 82.1% in the decade 1941-51 was partly due to inclusion of new areas in Madras City (nearly 22 square miles.)

In all censuses, two tables are generally presented indicating the population of each district in earlier censuses as recorded for the territory that existed at the time of censuses and the population of each district in earlier censuses adjusted for the jurisdiction prevailing on the date of the present Census. The population of the city in 1941 was 777,481. When it was adjusted for the 1951 jurisdiction, the 1941 population was estimated at 881, 485. Thus 104,004 was the population increase through the inclusion of new areas.

The actual increase in population during

1941-51 due to demographic factors viz., birth, death and migration, is 534,571.

Registration of vital events

In this connection, a short history of the Registration of vital events in Madras City will be interesting. Registration of births and deaths began in Madras in 1865. It was not obligatory in municipal areas until an Act was passed in 1899. But compulsory registration of births and deaths in Municipal areas was enforced by an Act in 1884. In Madras City, the Registration of births and deaths is done by Medical Officers employed in the Corporation. The birth and death statistics are available from 1891 onwards. Though Madras State can very well claim to be the pioneer in the field of enforcement of compulsory registration, certain drawbacks do exist. Comments of M. W. M. Yeatts in 1931 clearly focus attention on this aspect:—

"The above enactment provided from a general point of view, ample powers of securing efficient registration. In practice, however, Madras vital statistics are anything but above cavil...Omissions are the most striking instance of weakness in the records, there are others, however, e.g. the circumstance that the date at least in the case of births is nearly always an approximation and may be distant by weeks or months from the actual event. In such original data, the possible error is large and this reappears inevitably in ratios based on them. Great care is necessary in using such ratios and probably much of the ill favour in which statistics are held in uninformed quarters is due to unintelligent preparation and use. To some minds the presence of decimal point with a string of figures conveys an impression of profound exactitude; actually the decimal and its sequent digits in fact even the units or ten figures may be examples of spurious and misleading detail. No sane person will step on a bridge that seemed not up to his weight; many will avoid deduction beyond the range of their premiss.···The number of births is anything but an exact determination of actual facts as has been indicated, deaths are less inaccurate but are far from absolute. The Health Officers in 1930 detected 60,000 unregistered births. This is over 3.8% of the actually registered births and represents not the finally ascertained error but merely an empirical determination. The error is of formidable dimensions as it is and shows clearly the need for caution in using as absolute records ratios based on the data so fluid. Justifiable deductions of trend from such statistics as Madras birth rates could not however be made at all from the actual statistics for the methods of original collection are in constant development and until they have settled down to a reasonably constant level and till observations on that level for a considerable series are available, deduction of birth rate progress from statistics alone is a perilous business".

When such was the condition in 1931 the position in earlier decades would have been worse. The 1901 Census report has made the following comments: "What, however, is the exact ratio of births to deaths, it is impossible to say for the registration of both of them in this Presidency is so incomplete that the statistics returned are worthless in all matters in which exactness, is required. Probably the only place where registration is effective is Madras City where the provisions of the law compelling registration (Sections 394–404 of the City of Madras Municipal Act I of 1884) seem from the agreement which exists between the birth and death rates recorded there with those calculated from other sources to be strictly observed. In the district municipalities the law on the subject (Sections 243-249 of Madras Act IV of 1884) is much the same as in Madras city, but that it is less rigidly enforced is clear from the fact that the recorded ratio of births and deaths per mille of the population in these municipalities is much less than in Madras City. The only explanation of these differences is that omissions to register are frequent. There were, it is true, 8,734 prosecutions under these two Acts in the eight years, between 1893 and 1900 but in the quarters of the lower classes of the population the arrival of a baby is a matter of such small account and its death and burial occasion such small remark that it is most difficult to detect cases in which registration has been neglected".

The remarks made in 1901 are more favourable to Madras City. The remark in 1931 is applicable to the whole of the State. It could not however be assumed that there has been any decline in the standard of registration during 1901-1931.

It is likely that the registration of deaths in the city is more accurate than in other districts. The 1951 Census report, however, recorded that in spite of defects in the existing scheme of registration of births and deaths, registered birth rates and death rates are sufficiently reliable for broad conclusions being drawn from them.

The table below indicates the number of births and deaths registered during the last seven decades·

TABLE 3-5

Registered Births and Deaths

Year	Births	Deaths
1891 - 1900	178,349	183,432
1901 - 1910	191,903	219,610
1911 - 1921	196,344	219,307
1921 - 1931	225,035	224,441
1931 - 1941	294,485	248,212
1941 - 1951	377,347	292,804
1951 - 1961	650,590	371,286

For the first three decades, the number of deaths recorded has been far in excess of births. Mr. Yeatts has remarked as follows: "The figures are subject to a good deal of qualification for registration of vital statistics is by no means perfect even now and was notably less so forty years ago. The recording of these statistics has been in fact constantly developing and this introduces an unknown element of variation into the results".

The number of deaths per 1000 births during these decades is as follows:

TABLE 3-6

Proportion of deaths to births

1891 - 1900	1028	deaths per 1000 births
1901 - 1911	1144	-do-
1911 - 1921	1116	-do-
1921 - 1931	997	-do-
1931 - 1941	842	-do-
1941 - 1951	776	-do-
1951 - 1961	570	-do-

The gradual decline in the proportion of deaths per 1000 births has been recorded since 1901.

This trend may reflect a definite decline in mortality rates due to improved health conditions and control of epidemics and a more efficient method of registration of births. Normally in a city like Madras registration of deaths is more accurate because a certificate has to be filled up at cremation ground which has to be forwarded to the Health Officer of the area. It is, however, difficult to calculate accurately the extent of error inherent in the registration of births in previous decades.

Birth and Death rates

The following table shows the birth and death rates for the city from 1891 onwards.

TABLE 3-7

Birth and Death Rates for the City

Decade	Birth rate	Death rate	Natural increase rate
1	2	3	4
1891–1901	33.9	34.8	— 0.9
1901–1911	34.0	38.9	— 4.9
1911–1921	33.6	37.5	— 3.9
1921–1931	34.0	33.9	— 0.1
1931–1941	36.5	30.7	+ 5.8
1941–1951	32.8	25.5	+ 7.3
1951–1961	41.3	23.6	+ 17.7

The mean decennial bith rate for 1951–1961 is rather high compared to earlier decades. Though the birth rate has fluctuated over the decades the death rate has showed a steady decline. The death rate has come down to 23.6 in 1951–61 from 38.9 in 1901–11. In Table 3–8, the vital rates for the period 1951–62 are presented.

For the major part of this period, the birth rate has been around 40. The death rate has been almost halved during the decade 1951–61. The improvement in the death rate explains to a great extent the spurt in the rate of natural increase.

TABLE 3-8

Vital rates during 1951-62 for the city

Year	Birth rate	Death rate	Infant mortality rate	Maternal mortality rate
1	2	3	4	5
1951	41.11	29.31	166.67	2.50
1952	42.28	29.03	163.82	2.40
1953	35.20	28.37	180.28	2.78
1954	37.12	20.78	136.24	2.47
1955	...	...	...	...
1956	39.59	19.90	145.24	2.18
1957	39.35	20.91	139.71	2.08
1958	39.65	20.34	144.60	1.95
1959	33.24	15.88	129.17	1.93
1960	32.88	15.27	121.60	1.58
1961	41.61	18.71	115.79	1.15
1962	42.47	16.15	115.10	1.12

Fertility level

The following table gives the age-specific fertility rates for Madras City as in 1961.

TABLE 3-9

Age - Specific Fertility rates

Age-group	Fertility rate per 1,000 women
15 - 19	141.7
20 - 24	254.9
25 - 29	263.1
30 - 34	179.4
35 - 39	89.7
40 - 44	14.1
45 +	0.4
All ages	87.9

It is observed that the fertility rate starts at a low level in the age-group 15-19 and rises to its peak in the age-group 25-29. A steady fall in fertility is noted in subsequent age-groups and the lowest fertility rate is recorded in the age-group 40-44.

These rates have been computed with reference to the women in the respective age-groups. It will be more relevant to compare the fertility rates calculated with reference to currently married women in the age-groups. The computation of marital fertility rates as these rates are called, enable us to account for differences in the proportions of currently married women in these age-groups.

TABLE 3-10

Age-specific marital fertility rates

Age-group	Age specific marital fertility rate (for 1,000 married women)
15--19	287.2
20—24	311.6
25—29	286.6
30—34	198.5
35—39	105.6
40—44	19.8
45+	1.0
All ages	201.8

Fertility rate of married women starts from a low level in 15-19, reaches its peak in 20-24 and then tapers off to lower levels in subsequent ages.

The child-woman ratio

Child woman ratio is a rough measure of fertility differential in the absence of reliable registration data. If we examine the ratios of children 0-4 to women aged 15 to 44 and that of children 5-9 to women aged 20-49, we find that Madras City has a lower fertility than the State as a whole. When the former measure is employed, it appears that in 1961, Madras City averaged only 571 children per 1,000 women in the ages 15-44 whereas the rest of the State averaged 603.

TABLE 3-11

Child Woman Ratio

Year	Madras City		Rest of the State	
	(a) CWR	(b) CWR	(a) CWR	(b) CWR
1901	471	546	610	676
1911	437	507	590	611
1921	396	475	541	626
1931	455	487	[illegible]13	597
1941	474	579	584	651
1951	384	450	531	575
1961	571	601	603	615

A similar differential has been in evidence even in the past.

Mortality level

As may be seen from Table 3-7 the death rate in the city which was 34·8 during the decade 1891–1901 has come down to 23.6 in 1951–61. The improvement in the mortality conditions in the city especially during the last decade can be ascribed to several causes. First, the number of steps taken by the Health Department of the Corporation of Madras to improve the sanitary conditions and the efforts to mitigate the effects of epidemics were beginning to yield result. Among the health measures taken by the city authorities are compulsory vaccination, the training of midwives and the provision of certain basic prenatal and postnatal services to mothers and infants in the various maternity clinics. Perhaps the most important factor is that more than 80 per cent of the confinements in the city take place in the hospitals. This factor of hospital delivery is particularly important because in the country as a whole, about 85 per cent of the infants are delivered in the homes of the mothers. The Malaria Eradication Programme is yet another measure which controlled the number of deaths.

Infant Mortality

The Infant Mortality rate in Madras City has declined from 280 in 1900 to 116 in 1960. The highest rate of ·360 was registered during the influenza epidemic at the end of the first World War. It is obvious that the infant mortality rate decreases with the general mortality rates. There is also a correlation between the decline in infant mortality and the decline in female mortality, particularly maternal mortality. This is borne out by the figures in Table 3-8·

While the present infant mortality rate of 115 is a high figure when compared with what has been achieved in the advanced countries (between 20 and 25) the present rate represents considerable progress in relation to conditions two decades ago. It can be said that infant mortality rates respond whenever a community has sufficient resources to ensure hospital delivery, improved sanitation and public hygiene and impart health education to the citizens.

Causes of death in the city

The cause of death statistics for the city has been compiled by the Madras Corporation according to the International Standard Classification. The figures under 17 broad causes for 1960-1962 are given in Table 3-12.

Of the 17 broad causes considered here, we find that the largest percentage of deaths (29.2) is due to symptoms, senility and ill defined conditions (No. 16). Next come the diseases of the respiratory system which account for 22 2% of deaths in the city during 1960–62. Infective and parasitic diseases and diseases of the digestive system account for 14.2% and 10.7% respectively. Certain diseases of early infancy have contributed to 8.3% of deaths in the city during 1960–62. The contributions of the remaining groups are relatively small. If we take up the detailed classification, we find that pneumonia, senility without psychosis, other diseases of the respiratory system account for the largest number of deaths.

Migration

Migration is an important factor in the growth of cities. Normally the growth is attributed to the centripetal influence of developing economy represented by trade and industry. But the growth of Madras cannot be explained by such a single generalization. In its earliest days the expansion of urban areas around Fort St. George was due to the opportunities for trade which Indian merchants and craftsmen found by their association with the British. A thirty year exemption from taxes was given to those who settled near the Fort. Further, there was security which the Fort provided during periods of upheaval and disorder and which attracted people to the neighbourhood of the city. With the gradual assumption by the East India Company of administrative and judicial functions, the number of officials and clerks increased proportionately. Courts and the administrative offices created a new professional class and a petty bourgeoisie distinct from the traders and craftsmen.

The 19th century brought to India the marvels of mechanical power and methods of western education. These factors exerted some definite influence on urban development in Madras. The demand for the new education led to the esta-

TABLE 3-12

Death by broad causes–Madras City, 1960–1962

	1960		1961		1962	
	Males	Females	Males	Females	Males	Females
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. Infestive and Parasitic diseases	2,548	2,243	2,654	2,603	1,782	1,678
2. Neoplasms	146	145	141	130	105	143
3. Allergic, endocrine system, metabolic and nutritional diseases	255	250	196	185	152	144
4. Diseases of the blood and blood forming organs	127	194	163	216	118	152
5. Mental, Psychoneurotic and personality disorders	3	4	11	13	3	3
6. Diseases of the nervous system and sense organs	515	467	516	396	412	340
7. Diseases of the circulatory system	990	578	928	554	1,113	612
8. Diseases of the respiratory system	4,024	3,927	3,462	3,444	3,146	3,113
9. Diseases of the digestive system	2,019	1,796	1,795	1,723	1,463	1,379
10. Diseases of genitourinary system	307	249	242	245	213	223
11. Deliveries and complications of pregnancy, child-birth and the puerperium	...	119	...	83	...	124
12. Diseases of the skin and cellular tissue	9	11	15	18	19	18
13. Diseases of the bones and organs of movement	20	16	13	17	21	17
14. Congenital malformations	64	73	86	8[illegible]	89	56
15. Certain diseases of early infancy	1,473	1,264	1,527	1,277	1,311	1,046
16, Symptoms, senility and ill defined conditions	4,359	4,923	4,464	4,718	4,421	4,872
17. Accidents, poisoning and violence	319	255	340	234	283	204
Total	**17,178**	**16,514**	**16,553**	**15,941**	**14,651**	**14,124**

blishment of Anglo-vernacular schools from which the modern educational system with the University at its apex, subsequently grew. This development added diversity to the population. Schools and Colleges attracted a large number of students and profession of teaching grew in importance. The introduction of mechanical power brought about an adverse change in the importance of Madras as an industrial and trading centre. The industrial revolution actually inflicted a serious injury on the indigenous industries on which Madras has grown and flourished. The location of the city and absence of any fuel handicapped Madras in modern industrial development.

While Bombay and Calcutta went ahead with industries, Madras lagged behind and shed her former supremacy to these younger but more favourably situated cities. In the latter half of the 19th century only textile mills were established in the north western part of the city. The growth of modern transport made Madras a Port and a Railway Centre. But the city never showed promise of becoming a highly industrialized centre. Madras is no doubt the seat of Government and the centre of commerce. It has a Port and is an University town. It contains modern factories as well as traditional handicrafts. The distribution of the population in different industries can be seen in the following table·

TABLE 3 - 13

Occupational distribution of population

Occupation	Percentage of population		
	Madras	Bombay	Calcutta
(1)	(2)	(3)	(4)
Mining, Household Industry manufacturing	28.3	42.3	26.2
Construction	4.3	2.7	3.2
Trade	19.1	18.0	23.9
Transport	11.8	11.2	11.7
Other services	36.4	25.4	35.0
Non-workers	69.5	59.4	59.6

The percentage of workers in various industrial categories shows that the maximum proportion is found in other services while in Bombay, "manufacturing" is the most important.

Migration has played an important role in the growth of Madras City. People can be attracted to the city by the hope of higher wages and more prosperous conditions of living but they may also move to the city in despair bred by prolonged periods of agricultural depression. In Madras Presidency during the famine of 1876 - 78 and the monsoon failure of 1918 and 1920, prices of food stuffs went up due to scarcity. But such periods of famine and scarcity do not seem to have produced any appreciable increase in the rate of immigration to the city.

One explanation for this may lie in the fact that scarcity affected urban areas as badly as rural areas, and that city did not offer any advantage for better living when compared with rural areas. In those days when caste system was particularly strong, people would prefer to die during a famine in their villages among their relatives rather than in the city.

Another deterrent to migration to city at the time of famine is also found in the arrangements of relief provided for in the Famine Code. In a published review of the Madras famine of 1876–78, an account is given of the arrangements made to deal with the problem of migration to the city from the famine areas. It reads as follows:

"On the 4th December, (1876), the Commissioner of Police at Madras was authorised to arrange for open places where cooked food could be daily served for the suffering poor, as there were many persons among the numbers flocking into the town who were unable from age or weakness to avail themselves of the public works in progress." "On the 21st, the arrangements made by the Collector of Chingleput for forming relief camps at the Red Hills, at Pallavaram and at Poonamallee, to prevent the influx of destitute ryots and their families to Madras were approved."

Again "on the 26th, the Government sanctioned the adoption of measures for gratutiously relieving in their own villages the sick and infirm poor who were unable to work in order to prevent their wandering to relief houses."

A little later was added the arrangement for the removal of a number of paupers whose presence was adjudged a menace to Public Health.

"In consequence of the large numbers of paupers collected at relief houses in Madras and of the appearance of cholera and the increasing death rate, the Government on 9th January ordered the Commissioner of Police at Madras to establish a pauper camp at the Red Hills, about 6 miles from the town, to accommodate 6,000 individuals. To this camp he was ordered to send the paupers in the Madras Relief houses and as soon as he became able to work they were to be transferred to the nearest relief works available in the Chingleput District".

Thus the facts will show that in spite of scarcity and famine in the Madras Presidency, the increase of the city population was relatively small. Control of migration combined with the relief afforded in the rural areas, provided an effective check on the growth of Madras City, during this period.

The Royal Commission of Labour in India, 1931, has commented on migration as follows:

Emigration has always arisen mainly from the difficulty of finding an adequate livelihood in one's native place and this is the predominant force which impels the Indian villager to seek industrial employment. Over large parts of India, the number of persons on the land is much greater than the number required to cultivate it and appreciably in excess of the number it can comfortably support. In most areas pressure on the land has increased steadily for a long time and the rise in the general standard of living has made this pressure acutely felt. There has always been a substantial class of landless labourers earning a meagre living in good seasons and apt to be reduced to penury in bad ones. The loss of land through indebtedness, the need or desire of a landlord to increase his own cultivation, quarrels, the death of the title holder and other causes, bring fresh recruits to this class. Among those who retain tenancies, various changes may operate to render a holding insufficient for those who depend on it. The increase in number of members of the family, a rise in rent, the growth of debt, all contribute to force the agricultural worker to abandon his ancestral occupation.

Thus the migration which inflates the population figures of the city may be described as the 'migration of despair'. A section of the migrants may however, be inspired by enterprise, the possibility of a new hope for fortune.

The figures on migration are given below:

TABLE 3 - 14

Migrants during 1901 - 1961

Census year	Total migrants	Percentage of migrants to total population
(1)	(2)	(3)
1901	160,623	31.5
1911	173,344	33.4
1921	176,500	33.4
1931	225,225	34.8
1941	N.A.	N.A.
1951	574,425	40.5
1961	642,828	37.1

In the 1961 Census, the migrants have been classified according to duration of residence. The 1961 figures for the city are given in the following table:

TABLE 3 - 15

Duration of residence of migrants (1961)

Duration of residence	No. of migrants
Less than one year	52,988
1 - 5 years	181,459
6 - 10 „	133,773
11 - 15 „	93,196
16 & above	172,229
Period not stated	9,183
Total	642,828

As may be seen from the above table, the number of persons who settled in Madras during 1951-61 is 368,220. In other words, 57.2% of the total migrants, had come to Madras during the last decade and the rest, 42.8 per cent, would have settled prior to 1951.

Sex-ratio

The sex ratio among the migrants is interesting. As can be expected, the number of male migrants has always been in excess of female migrants.

TABLE 3 - 16

Sex-ratio of migrants (1901-1961)

Year	Males	Females	Sex-ratio
1901	84,941	75,682	891
1911	93,737	79,607	849
1921	100,617	75,884	754
1931	126,244	98,981	784
1941	...	...	...
1951	316,624	257,801	814
1961	348,839	293,989	843

Sex-ratio among migrants has varied from decade to decade. In 1901 there were 891 females per 1,000 males among migrants, which decreased to 849 in 1911 and 754 in 1921. But there was a further increase to 784 in 1931, 814 in 1951 and 843 in 1961. This trend indicates a greater movement of migrants with their families. This trend in sex-ratio of migrant is exactly the opposite of the pattern of sex ratio in the general population of Madras city. It is as follows:

TABLE 3 - 17

Sex-ratio of the city's population (1901-1961)

Year	Sex ratio of the city population
1901	983
1911	947
1921	911
1931	899
1941	910
1951	921
1961	901

The sex-ratio in the city as a whole declined from 983 in 1901 to 901 in 1961. The general theory that sex-ratio of the city is adversely affected by migrant population is confirmed by the above statistics.

Houseless and institutional population

The warm and equable climate of Madras has always encouraged people to live in the open space.

The Census report of 1931 on Madras City contains the following observations: A considerable element of the city's population consists of persons who have no dwelling other than the side walk and want none.

Floating labour comes in by families to work in Wall Tax Road and other such neighbourhood. These family groups may be found camping in many of the Madras thoroughfares. They are not tramps but ordinary citizens in all but the possession of a house. Many persons found sleeping on house or shop pials and verandahs were probably classed by enumerators with the bonafide occupants of these last and the dimensions of this contribution to the city's population are greater than is usually recognised. The Census reports of early years (prior to 1931) made no definite attempt to estimate houseless population. In 1871 the homeless persons were estimated at 3,632.

A Census was however taken by the Corporation staff on behalf of the Special Housing Committee of the Corporation in 1933. This Census was carefully organized and 78 enumerators were employed. Each municipal division was divided into circles of manageable size and each such circle was enumerated by a Special Sanitary Inspector or Overseer. A survey preliminary to the final count was made. One of the main difficulties of such a census is that many people who have homes sleep in the streets or on sidewalks and verandahs by choice, and it is difficult to distinguish them from the really homeless. There is also the possibility of good deal of double counting of persons who may move from one place to another during the count.

The final count was commenced on the midnight of November 25, 1933 and completed in two hours. The persons enumerated were found sleeping on roadside or platforms, pials of vacant houses, choultries, plank projections in front of shops etc. A number of persons, members of a family, were found wrapped up in one single torn blanket on account of cold weather. They were mostly clad in rags. Some were sleeping on torn mats with pillows, and with a few vessels, pots

and baskets close by. These utensils were used by them for cooking purpose. Some beggars and 'paradesees' were found with tin vessels, sticks etc. Their conditions as a whole were reported to be pathetic and deplorable.

The total number of homeless people enumerated in 1961 Census was 10,749. The largest number of houseless persons was found in the 8th division (Kotwal Bazaar). Over 1,000 were found in both the 11th division (Esplanade) and the 15th division (Park Town). The lowest number was recorded in division 21 (Kilpauk) and 22 (Nungambakkam) division. They are wealthy residential localities occupied mainly by large bungalows and garden houses.

The report of Special Housing Committee 1934, concludes:

"These unfortunate people generally make their abodes near the place where they find some means of living. The coolies working in the harbour were found sleeping on the platforms on the sides of North Beach Road, verandahs of godowns and offices in Moore Street, Narayanappa Naick Street and Krishnan Koil Street. The coolies working in the Kotwal Bazaar were found mostly in Loans Square, pials and verandahs of offices and godowns in Malayaperumal Street. Similarly large numbers of the homeless were found sleeping in front of Godown and shops in Bunder Street, Godown Street, China Bazaar Road and on road-side platforms in China Bazaar Road near the Law College Police Station, and the open land adjoining that place, Rasappa Chetty Street, Nyneappa Naick Street and Devaraja Mudali Street on the sides of roads or verandahs and on plank projections in front of shops in the localities. In the area adjoining the Ripon Buildings were found large numbers of beggars sleeping on the pavements and on both sides of the General Hospital Road."

In 1951, figures of institutional and houseless population were published. Separate figures for houseless persons were not made available and the figures were grouped with institutional population, which included houseless population and persons in hospitals and other places. There were 42,435 persons in this category (26,075 males and 16,360 females).

In 1961, people who do not live in houses, tents etc. but who were pavement dwellers or homeless beggars, vagrants, nomadic tribes, tramps or sadhus were enumerated at the place where they were found on the nights of February 28th to March 4th 1961. Inmates of charitable penal, or mental institutions, hostel, hotel, hospital, boarding house etc. were enumerated along with the general population between 10th and 28th February 1961.

The total number of houseless population in 1961, is 9,032 consisting of 5,773 males and 3,259 females. The total population residing in institutions is 43,969 composed of 30,671 males and 13,298 females. The percentage of both houseless and institutional population to the total city population is 3.06 as against 2.99 in 1951. The houseless population in 1961 forms 0.58% and institutional population forms 2.54%. The sex ratio in 1951 was 67 females per 100 males taking both institution and houseless persons but the sex ratio in 1961 is only 45 females per 100 males. The sex ratio is lower among institutional population (43 females per 100 males) than among houseless population (56). The variation of houseless and institutional population is too small to affect the growth of population of Madras City. The increase in houseless population creates problems only of civic administration and does not by itself add to the population growth of the city.

Though the houseless population is scattered throughout the city, about 21.22% of houseless male population and 11.44% of female houseless population is recorded in Division 14 i.e. Harbour area and should therefore belong to the labouring class of unloaders and loaders. The other important divisions recording houseless population are 19 (330 males and 228 females) 20 (459 males and 380 females), 64 (409 males and 278 females). Division 19 is Kothwalchavadi, the biggest wholesale and retail market in the city where all the consumer goods (mainly vegetable) are brought from mofussil area. Division 20 is Kachaleeswarar possessing godowns and Division 64 is Park Town. Twentyone out of 100 divisions have no houseless population at all. 29 divisions have recorded houseless population of less than 10 in each.

As against the houseless population which is found only in a few divisions, the institutional population is spread out over the city, and there

are however 10 divisions possessing no institutional population. Large numbers of institutional population are found in Division 11 (1,113 males and 600 females), Division 20 (1,190 males and 56 females), Division 46 (1,211 males and 894 females), Division 52 (1,530 males and 685 females), Division 54 (1,715 males and 96 females), Division 64 (4,073 males and 1,184 females), Division 67 (1,127 males and 807 females), Division 82 (1,009 males and 306 females) and Division 99 (1,222 males and 79 females), Division 85 (110 males and 1,045 females).

In fifteen divisions the number of females is in excess of males among institutional population and in all the other cases males exceed females.

Division-wise density of population in 1961

The density of population in Madras City works out to 35,289 persons per square mile which is the highest in the State. Since the city has been divided into Divisions, the area per Division works out much less than a square mile and in order to study the pattern of density among the various Divisions, the area is being taken as acre instead of mile. Out of those 100 divisions, exactly 50 divisions have a population density of less than 100 persons per acre. Among these fifty, 23 divisions have a density of less than 50 persons per acre and 27 divisions, density of 50-90 persons per acre.

The highest density is found in one Division viz., 27, where 450 to 499 persons reside in one acre. The table below indicates the number of divisions against each density range.

TABLE 3-18

No. of divisions in density ranges

Density per acre	No. of divisions
0 – 49	23
50 – 99	27
100 – 149	14
150 – 199	12
200 – 249	10
250 – 299	7
300 – 349	5
350 – 399	...
400 – 449	1
450 – 499	1
	100

TABLE 3 – 19

Population in some Divisions in 1951 and 1961

Name of Division	Population				Houseless and institutional population			
	1951	1961	Variations	%	1951	1961	Variations	%
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
New Washermanpet	31,369	41,499	10,130	32. 3	1158	721	–437	-37.73
Sanjeevarayanpet	51,378	56,860	5,482	10. 7	56	118	62	110.71
Korukkupet	36,606	56,261	19,655	53. 7	359	836	477	132.86
Vyasarpadi	24,788	45,337	20,549	82. 9	18	65	47	261.11
Ammankoil	23,590	24,230	640	2 7	1,333	663	-670	-50.26
Muthialpet	26,191	27,016	825	3. 1	244	684	440	180.32
Harbour	15,971	16,404	433	2. 7	1,667	3,283	-1616	96.94
Kothwal Bazaar	15,117	12,894	-2,223	-14. 7	4,477	1,369	-3,108	-69.42
Perambur Barracks	29,505	33,961	4,456	15. 1	255	539	284	111.32
Guindy	17,416	24,351	6,935	39. 8	1,378	1,301	-77	-5.58

Variation in population in certain Divisions during 1951-61

Table 3-19 indicating the 1951 and 1961 divisions which are identifiable, highlights the following points :

The highest percentage of increase is recorded in Vyasarpadi which has registered 82.9% variation during 1951-61. The lowest increase is noticed in Ammankoil (2.7%). Out of 12 Divisions, five have recorded an increase above the average increase for the city as a whole.

Another important result is the decrease in population in Kothwal Bazaar. The 1951 population was 15,117 which decreased to 12,894 in 1961. The houseless and institutional population also has recorded a decrease over 1951. The houseless and institutional population in this division in 1951, was 4,477 a majority of whom were females (1,069 males and 3,408 females) which has sharply declined to 1,369 and also indicates a strong reverse sex ratio there being 1,123 males and 236 females.

Harbour division also has recorded the lowest percentage of increase of 2.7% and this division has also recorded a sharp rise in the institutional and houseless population which increased from 1,667 in 1951 to 3,283 in 1961 - a rise of 96.9%. These two areas which were typical representatives of pavement dwellers have followed similar pattern of population growth.

Korukkupet which has recorded an increase of 53.7% has also recorded an increase of institutional and houseless population from 359 to 836, an increase of 132.8%.

Ammankoil is yet another division which has recorded a very low increase followed also by a decrease in institutional population from 1333 to 663.

Age structure

A study of the age structure of the population and its changes is useful in understanding the three factors fertility, mortality and migration. Table 3-20 shows the percentage distribution in the various age-groups for Madras City.

According to Sundbarg's rule, a normal population has about one half of its total between the ages 15 and 50 and the proportion of those above that age to those below it indicates whether the population is increasing, stationary or decreasing.

TABLE 3-20

Percentage distribution by age-groups

Age-group	Persons %	Males %	Females %
0 - 4	13.24	12.74	13.80
5 - 9	12.35	11.92	12.83
10 - 14	10.64	10.41	10.89
15 - 19	8.66	8.12	9.25
20 - 24	10.73	10.63	10.84
25 - 29	10.21	10.04	10.40
30 - 34	7.97	8.31	7.59
35 - 44	12.18	13.37	10.85
45 - 59	9.90	10.54	9.20
60 +	4.11	3.91	4.34
Age not stated	0.01	0.01	0.01

The youngest of the three population groups must be double the eldest if the population is to continue to grow ; just short of that point, it may be stationary but if the elder continues to exceed the younger, the population would be regressive. We may take the age-group 15 to 44 as representing the middle age-group as far as Madras City is concerned so that the youngest and the eldest age-groups will be 0-14 and 45 and over. The percentage distribution among the three age-groups is as follows :

Age-groups	Percentage
0 - 14	36.2
15 - 44	49.8
45 +	14.0

The population of Madras City belongs to the progressive kind.

Infants and young children

The percentage of infants and young children to the total population is given below for the city and States :—

	1951	1961
Madras City	9.1	13.2
State	12.0	13.7

Both in the city and State the proportion of infants and young children has increased ; in the city the increase is to the extent of 4 points whereas in the State it is only by 1.7 points. The

increase is mainly due to the declining trend in infant mortality and increasing facilities with regard to medical facilities.

Boys and Girls

The table below compares the proportion of boys and girls in the population in the age-group 5–14 with 1951 figures :—

	1951	1961
Madras City	22.2	23.0
State	24.1	23.9

In the State as a whole, there is only a slight decline viz., 0.2 percent in the proportion of boys and girls during the decade. It may be said that the proportion has remained almost stationary during the period. The city has, however, shown a slight increase in the proportion.

Young men and women

The proportion of young men and women (age-group 15-34) in the city and State is as follows:—

	1951	1961
Madras City	38.9	37.6
State	33.6	33.0

The largest proportion of population both in the city and the State may be categorized as young men and women.

Middle aged and elderly persons

	1951		1961	
	Middle Aged	Elderly	Middle Aged	Elderly
Madras City	21.3	8.4	20.0	6.2
State	21.8	8.5	21.0	8.3

In both the city and State the proportion of middle aged and elderly persons has decreased, the decrease being more pronounced in the city.

Age pattern

A population may be classified as "young" if they have less than 4 per cent of persons above 65 years, as "mature" when the percentage is between 4 and 7 and "aged" when it exceeds 7 per cent. It is observed that a major proportion of world population may be regarded as "young or mature" and only a very small proportion as "aged". Madras City has a fairly "young" population whereas the cities in economically advanced countries have "aged" population.

Marital Status

The following table gives the distribution of 1,000 males and females by marital status.

TABLE 3-22

Distribution of 1,000 males and females by marital status

Marital status	Distribution of 1000 Males	Females
Never Married	583	449
Married	394	436
Widowed	21	110
Divorced/Separated	2	5
Unspecified status	...	...

From the above table it is evident that the proportions of females in all except the 'Never Married' category are higher than the corresponding proportions for males.

An idea of the marital status of the population of the city by sex and age-groups can be had from the following table.

TABLE 3 - 23

Percentage distribution of males and females in age-groups by marital status

Age-Group	Never Married		Married		Widowed		Divorced/Separated	
	Males	Females	Males	Females	Males	Females	Males	Females
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
0 - 14	100.0	99.7	...	0.3	...	...	...	...
15 - 24	89.5	32.1	10.3	66.9	0.1	0.6	0.1	0.4
25 - 34	30.0	3.9	69.0	91.2	0.7	4.1	0.3	0.8
35 - 44	4.5	1.6	92.8	78.8	2.3	18.2	0.4	1.4
45 - 59	2.6	1.1	89.9	48.1	7.1	49.7	0.4	1.1
60 +	1.7	1.0	74.7	14.7	23.1	83.8	0,5	0.5

In the age-group 25-34 the percentage of 'Married' is the highest among females. The percentage of 'Married' among males is the highest in the age-group 35–44.

Scheduled Caste and Scheduled Tribe Population

In Madras City there are 214, 103 Scheduled Caste population which works out to 12·38% of total population of the city. The total number of Scheduled Tribe population is only 1,396 or 0.08% of the total population. The total Scheduled Caste population in Madras State itself is only 18.01% and the percentage of Scheduled Tribe population is only 0.7%.

Madras city ranks fourth among the cities with a population of over 50,000 in respect of percentage of male and female Scheduled Caste population. The percentages are:

	Males	Females
Madras	12.16	12.63
Valparai	44.85	46.05
Ootacamund	18.03	19.55
Rajapalayam	12.77	12.92

Though there are 28 cities and towns with total population above 50,000, only 15 towns have got Scheduled Tribe population and among these, Madras ranks sixth.

The important divisions within the city which have recorded Scheduled Caste population are given below.

TABLE 3–24

Divisions with Scheduled Caste Population

Division	Males	Females
Meenakshiammanpet	2,627	2,433
Harbour	2,797	2,559
Kachaleeswarar	2,184	2,038
Dr. Vijayaraghavalu Nagar	2,568	2,426
Basin Bridge	3,513	3,295
Vyasarpadi	5,277	4,937
Pulianthope	3,036	2,949
Thiruvikanagar	4,131	3.842
Dr. Besant Nagar	4,120	3,652
Siruvallur	2,356	2,277
Chetpet	3,757	3,564
Adikesavapuram	2,195	2,073
Duragapuram	2,020	1,941

TABLE 3–24 (*Contd.*)

Divisions with Scheduled Caste Population

Division	Males	Females
Karaneswarapuram	2,028	1,865
Aminjikarai	2,512	2,327
Satyamurthy Nagar	2,153	1,963
Guindy	2,287	2,093

Scheduled tribes are important only in the following three divisions.

Division	Males	Females
Amman Koil (North)	120	134
Pulianthope	257	276
Vadapalani	163	161

In other divisions, the figures are very low.

Greater Madras

The city has witnessed in recent times a phenomenal progress in the field of industry and commerce. This has resulted in over-crowding and formation of slums. According to the Report of Slums in Madras City (Census of India, 1961, Vol. IX, Part XI-C) there were 548 slums in the city containing a population of 4.12 lakhs. In other words, slum-dwellers constituted about 23.8 per cent of the city's population.

People have also shown a tendency to settle in the city margins. The electrification of a portion of the South Indian Railway has encouraged the development of suburban areas in the south. The growth of the residential suburbs outside the city has been further stimulated during the past three or four decades by the rapid development of bus transport in the city.

Thus the concept of 'Greater Madras' has been evolved which will cover the population in the areas on the outskirts of the city, outside the Madras Corporation limits, satellite towns and industrial areas or settlements close to the city which are even interspersed with rural areas. The inclusion, will be based on facilities for urban growth, transport arrangements and interchange of population on account of business and work. By this standard, the area bounded on the south by Tambaram, west by Avadi and north by Ennore should normally form the boundaries of Greater Madras with a population of 22 lakhs, but the present population of the city bounded by Corporation limits is 17.29 lakhs.

CHAPTER IV

HOUSING

Houselisting Operation

For the first time in Indian Census history, a housing Census was undertaken in 1960 throughout the country as a prelude to the population Census of 1961. All houses whether dwellings or non-dwellings have been numbered, listed and classified according to the uses to which they are put. The discussion in this Chapter is based on the results of this Census conducted in Madras City. The modus operandi of the Census has been detailed in the Volume, "Report of Housing and Establishments" (Census of India, 1961, Volume IX, Part IV A). The definitions of some of the basic concepts are however, reproduced below for ready reference :

Dwellings

The different types of dwellings are dwellings proper, shop-cum-dwellings and workshop-cum-dwellings.

Census Building

A building has been defined under the Madras House Numbering System. This definition will be adopted for our purpose. Under this system, every building with a separate main entrance is treated as an entity and given a number by which it can be distinguished from outside. This is the number given by the Municipalities, Panchayats and Village Officers and adopted for administration, election and taxation.

Census house

A Census house is a universal concept adopted by all nations. It is a unit which is viable and which can be distinguished. It is used as a dwelling, a shop-cum-dwelling or a place of business, school or workshop. It can be inhabited or vacant. It can be a structure or part of a structure. As long as it is a unit for the purpose of common living or work it is to be treated as a Census house and the aim of houselisting is to list out all Census houses which exist in the country.

Census Household

Census household refers to a group of persons who commonly live together and take their meals from a common mess unless the exigencies of work prevent any of them from doing so. A Census house can be occupied by one household or more. Institutions, catering houses and boarding houses are also households where unrelated persons live together. In our country, as the standard of living is low, it is likely that a good proportion of Census houses will be occupied by more than one household and as such, a clear distinction has been made between these two concepts-Census house and Census household - so that a proper assessment of our requirements and conditions of living can be made. A Census house refers to a structure while Census household refers to a group of persons.

Non-dwellings

Temporarily or occasionally occupied places like hotels, sarais, dharmshalas, tourist homes etc. have not been treated as dwellings. Other categories of non-dwellings are: shops excluding eating houses, business houses and offices; factories, workshops and worksheds, schools and other educational institutions including training classes, coaching and shop classes, restaurants, sweet-meat shops and eating places, places of entertainment and community gathering (panchayat ghar), public health and medical institutions, hospitals, health centres, doctors' clinics, dispensaries etc.

Such of those Census houses which do not come under any of the above mentioned categories have been classified as 'others'.

Houses and Households in the city

According to the houselist, Madras City returned 166,960 buildings and 273,418 census houses which gives a proportion of 1.64 census houses for every building. The corresponding proportion for all the urban areas in the State is 1.20 in 1961.

Madras City leads all cities and towns in the State in respect of proportion of households per occupied house (1.50). Table 4-2 will give an idea of housing in the State and city.

In the Madras State, the number of persons per house was 5.5 in 1901 and 5.3 in 1961. But in Madras City, the figure has gone up from 9.2 in 1901 to 11.7 in 1961. As may be seen from the following table, the increase in the number of houses has not kept pace with the increase in population during the nine decades 1871 to 1961.

TABLE 4-1

Madras City - Population and No. of Houses

Year	Area in sq. miles	Population	% increase	No. of houses	% increase
1	2	3	4	5	6
1871	27	3,97,552		51,741	
1881	27	4,05,848	2.1	64,550	+ 24.8
1891	29	4,52,518	11.5	60,103	— 6.9
1901	27	5,09,346	12.6	55,665	— 7.4
1911	27	5,18,660	1.8	59,595	+ 7.1
1921	29	5,26,911	1.6	64,621	+ 8.4
1931	29	6,47,230	22.8	73,845	+ 14.3
1941	29	7,77,481	20.1	87,888	+ 19.0
1951	49	1,416,056	82.1	1,09,993	+ 25.2
1961	49	17,29,141	22.1	1,47,694	+ 34.3

Vacant houses and types of occupied houses

Madras City, the urbs prima of the South is the seat of the State Government and a Chief Harbour on the Coromandel coast. A number of educational institutions, both technical and non-technical have been established here. Industries are springing up in and around the city. Consequently the accommodation problem is very acute. It is therefore not surprising that the least proportion of vacancy among census houses is observed in the city. The figure is 31 as against 68 for the State. Under shops and shop-cum-dwellings the city has recorded a high figure of 69. Under workshop-cum-dwellings the city has recorded a lower figure of 5 against 27 for the State, but the position of factories and workshops is better, the figure being 34. This reveals the concentration of medium and heavy industries. The distribution of 1,000 census houses by vacant and different types of occupied census houses for the city and the State is shown in the table 4-3.

Tenure status

The percentage of households residing in owned houses is least in Madras City (26.1). Barring Madras City and the hill district of Nilgiris, the figures of other districts vary from 73.7% to 89.3%. Madras City is an area which has registered an appreciable growth in the last

TABLE 4 - 2

Primary Houselist Abstract *

State/ District		No. of buildings	No. of Census houses	No. of establishments	No. of Census Households	No. of rooms	Population: Males	Population: Females	Population: Total
1		2	3	4	5	6	7	8	9
Madras State	T	7,210,283	7,799,674	192,164	7,105,440	10,228,577	16,477,686	16,361,488	32,839,174
	R	5,569,807	5,835,929	85,588	5,322,085	7,137,794	12,173,671	12,151,189	24,324,860
	U	1,640,476	1,963,745	106,576	1,783,355	3,090,783	4,304,015	4,210,299	8,514,314
Madras City	U	166,960	273,418	10,874	328,219	552,616	838,749	780,517	1,619,266

* Based on Houselisting of 1960

TABLE 4 - 3

Distribution of 1,000 Census houses by vacant and different types of occupied census houses

State/District	Total/Rural/Urban	Vacant Census houses	TOTAL	Dwellings, shop-cum-dwellings, workshop-cum-dwellings: Total	Dwellings	Shop-cum-dwellings	Workshop-cum-dwellings	Hotels, Sarais, Dharma-shalas, tourist homes & inspection houses	Shops excluding eating houses	Business houses and offices	Factories, workshops & worksheds	Schools & other educational institutions including training classes, coaching & shop classes.	Restaurants sweetmeat shops & eating places	Places of entertainment & community gathering (Panchayat ghar)	Public Health & medical institutions, hospitals, health centres, doctors' clinics, dispensaries etc.	Others.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Madras State	T	68	932	862	841	7	14	2	20	4	10	4	4	1	1	24
	R	71	929	880	863	7	10	1	11	2	5	4	3	1	N	22
	U	57	943	809	774	8	27	3	50	10	27	4	7	1	2	30
Madras District	U	31	969	803	792	6	5	2	63	17	34	4	9	3	2	32

30 years. The percentage of increase in the population in the decade 1941-51 was 60.64 while the corresponding increase in the number of houses was only 10.38%. This has given rise to a tendency to invest in buildings, so that they can be let out at considerable rent to others. Further, the floating population do not evince interest in owning property. These are some of the plausible reasons for the least percentage of owned houses in the city.

The following table gives the distribution of 1,000 Census households by types of Census houses and tenure status for Madras and some of the principal cities.

TABLE 4–4

Distribution of 1,000 Census households by types of Census houses and Tenure Status for Madras and some Principal Cities

City	Dwellings Owned	Dwellings Rented	Shop-cum-dwellings Owned	Shop-cum-dwellings Rented	Workshop-cum-dwellings Owned	Workshop-cum-dwellings Rented	Dwellings with other uses Owned	Dwellings with other uses Rented
1	2	3	4	5	6	7	8	9
Madras*	254	717	2	6	2	5	2	8
Greater Bombay	98	866	1	14	N	7	1	13
Calcutta	169	760	2	42	1	15	1	10
Delhi	331	653	3	7	N	1	1	4
Hyderabad	327	661	2	6	1	2	N	1
Bangalore (Corporation & Trust Board Area)	254	736	1	4	2	2	N	1
Ahmedabad	174	811	1	6	N	3	1	4

* Tenure status of 4 dwellings is not known.

The tenure status of dwelling houses has a correlation with the extent of urbanisation. In Greater Bombay, the most sophisticated and advanced City of India, 86.6 per cent of the dwellings are rented, followed in order by Ahmedabad (81.1), Calcutta (76.0), Bangalore (73.6), Madras (71.7), Hyderabad (66.1) and Delhi (65.3). Again, the proportion of rented units is more than that of owned ones in each of the other categories of dwellings as well.

Qualitative aspects of housing

Having discussed the quantitative aspects of housing in the city, it would be necessary to analyse the structure of the census houses on the basis of materials used for the construction of wall and roof. The building material generally reflects the status of the inhabitants. While houses built of burnt bricks, cement concrete and stone indicate the prosperity of their owners and tenants, flimsy structures built of mud wall and having grass, leaves etc. for roofs signify the poverty of the occupants. The former are usually called "pucca" houses and the latter "kutcha" structures.

No generalisations, however, can be made in this regard. For instance, in respect of tiles, it is not possible to conclude whether the inhabitants of tile roofed houses are well off or not. For, before the introduction of Mangalore tiles, Madras terrace and concrete slabs, country tiles were used as roofing material in some old areas of the city both by the poor and well-to-do classes. At the outset it would be worthwhile to have an over all picture of the extent to which different wall and roof materials are used in the urban areas of the State. Table 4-5 gives the distribution of 1,000 households living in Census houses used as dwellings by predominant material of wall and roof in the State.

The wall material mostly used in the city is burnt brick. Only in slums, mud walls are to be found. The city gets most of the building materials from outside. Bricks are manufactured in the brick kilns in the neighbouring areas coming under the taluks of Saidapet, Sriperumbudur and Ponneri in Chingleput district. Cocoanut fronds are got from the adjoining districts through boats plying on the Buckingham canal. The percentages of households living in

TABLE 4-5

Distribution of 1,000 households in the State according to material of wall and roof of houses

Wall material Urban		Roof material Urban	
Burnt brick	481	Tiles etc.	481
Mud	385	Grass, leaves etc.	325
Stone	76	Brick and lime	109
Unburnt brick	31	Concrete etc.	46
Grass etc.,	12	C. I. Sheet etc.	27
Cement	6	Asbestos	5
C. I. Sheet etc.	2	All other meterial	4
Timber	1	Roof material not stated	3
All other material	3		
Wall material not stated	3		

Census houses used wholly or partly as dwellings with the following important wall materials are given below:

Burnt bricks	...	67.5
Mud	...	25.5
Unburnt bricks	...	2.8
		95.8

The remaining items including 'wall material not stated' account for 4.2 per cent. The roof materials commonly used in the city are:

Tiles	...	39.0%
Grass, thatch etc.	...	31.0%
Brick and lime	...	17.2%
Concrete	...	9.5%
		96.7%

The remaining 3.3 per cent are distributed under other categories. From the above data on walls and roofing in the city, it is evident that houses with mud walls, by and large, have kutcha roofs and houses with brick walls have either tile, Madras terrace or concrete roofs. Among the 28 big towns in the State, under the class concrete roof, Madras City earns the 2nd rank with 95 houses, the first rank being held by Palayamcottai with 97. In respect of wall materials it takes the

8th rank under burnt brick. It has to be remembered in this connection that as many as 59,573 houses are spread over 548 slums. The bulk of the slum dwellers are encroachers and squatters. The woeful housing condition in the slums has been dealt with in detail in the volume, "Slums of Madras City" (Part XI-C). It will, however, be briefly discussed later in this Chapter.

The following comparative tables relating to the distribution of 1,000 households living in Census houses used wholly or partly as dwellings by predominant materials of wall and roof respectively will be of interest:

Households vis-a-vis number of rooms

It will be useful to examine now the composition of households on the basis of the number of members and by the number of rooms occupied by each household. This has a bearing on the congestion in households, a subject of vital interest in metropolitan planning. It should be conceded that no house has been constructed on the premise that it should accommodate a certain number of persons. In this analysis, however there is one important limitation, namely, the actual area of a room is not known. It is therefore difficult to definitely say whether a

TABLE 4–6

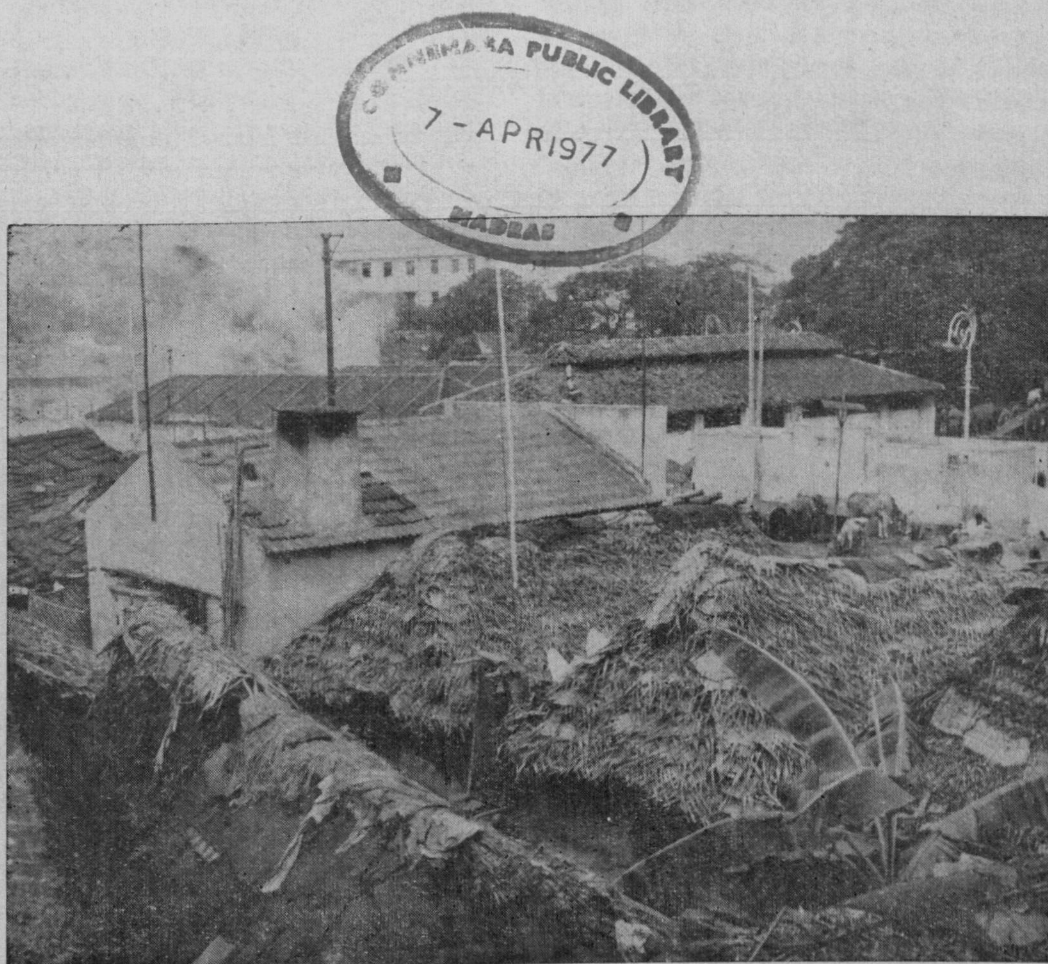
Comparative distribution of 1,000 households in the State and the city according to wall material of houses

State/ District	T R U	Grass, leaves, reeds or bamboo	Timber	Mud	Unburnt bricks	Burnt bricks	Corrugated iron sheets or other metal sheets	Stone	Cement concrete	All other materials	Wall material not stated
1	2	3	4	5	6	7	8	9	10	11	12
Madras State	T	10	2	652	24	229	5	70	2	2	4
	R	9	2	742	22	144	5	69	1	2	4
	U	12	1	385	31	481	2	76	6	3	3
Madras City	U	11	N	255	28	675	4	10	11	1	5

TABLE 4–7

Comparative distribution of 1,000 households in the State and the city according to material of roof

State/ District	T R U	Grass, leaves reeds, thatch wood or bamboo	Tiles slate shingle	Corrugated iron, Zinc or other metal sheets	Asbestos cement sheets	Brick and lime	Concrete and stone slabs	All other material	Roof material not stated
1	2	3	4	5	6	7	8	9	10
Madras State	T	579	328	15	2	44	25	4	3
	R	664	276	11	1	22	19	4	3
	U	325	481	27	5	109	46	4	3
Madras City	U	310	390	19	9	172	95	1	4



*A view of houses with different kinds of roof Materials —
Behind Stanley Medical College, George Town*



The Fore-Shore Estate, Santhome

house is overcrowded or not. In the absence of accurate area statistics, a rough assumption has however been made in defining over crowding. Any house which does not provide accommodation at the rate of one room for every two persons can be said to be over crowded. Three rooms in a household have been assumed to be a reasonable requirement if privacy is to be maintained irrespective of the manner in which these rooms are used.

In Madras City, for 1,000 households, 3 households have no regular rooms and 675 households have one room. The proportion of households occupying two rooms or less is 849 per 1,000. A room is defined as a space having four walls with a doorway and with roof overhead and it should be wide enough to enable a man to sleep i.e. it should be at least 5' long. This fact again brings out the shortage of open space and the accommodation problem in the city. The following table gives the proportion of households occupying three rooms, four rooms and five rooms and above in the urban areas of Madras State. As pointed out already, the houses coming under these categories may normally said to be not over crowded, though there may be exceptions.

TABLE 4-8

Proportion of households occupying three rooms, four rooms and five rooms and above in urban areas of Madras State

District	Households occupying: Three rooms		Four rooms		Five rooms and above		All the three categories combined	
	No. of Households per 1,000	Rank	No. of Households per 1,000	Rank	No. of Households per 1,000	Rank	No. of Households per 1,000	Rank
1	2	3	4	5	6	7	8	9
Madras	72	11	37	8	42	6	151	9
Chingleput	89	5	56	5	44	5	189	5
North Arcot	94	4	67	2	56	4	217	4
South Arcot	76	9	34	11	29	11	139	11
Salem	85	6	44	6	33	10	162	6
Coimbatore	80	8	36	9	40	7	156	7
Nilgiris	122	3	61	4	80	2	263	2
Madurai	71	12	30	13	27	12	128	12
Tiruchirapalli	75	10	42	7	37	8	154	8
Thanjavur	70	13	32	12	23	13	125	13
Ramanathapuram	81	7	35	10	34	9	150	10
Tirunelveli	130	2	63	3	57	3	250	3
Kanyakumari	171	1	95	1	104	1	370	1

The above table reveals that the urban tracts of Madurai and Thanjavur are more congested than Madras City. The comparative picture of average number of persons per room in each category of household in Madras City and the urban areas of the State is given in Tables 4-9 and 4-10.

It is observed, that compared to urban areas of the State as a whole, Madras City has more number of persons in every corresponding category of households. The size of a household in Madras is 4.91. There are, however, individual cities and towns in the State which have recorded a bigger household size than Madras. They are: Salem, Vellore, Nagercoil, Cuddalore, Gudiyatham and Ootacamund.

The details regarding number of persons, males and females, per room and persons per household in each category of household are given for the State in the table 4-10.

TABLE 4–9

Average Number of persons per room in each category of household

	1 room	2 rooms	3 rooms	4 rooms	5 rooms and above
1	2	3	4	5	6
State (Urban areas)	4.13	2.58	1.92	1.60	1.21
Madras City	4.22	2.75	2.12	1.72	1.35

TABLE 4–10

Persons per room and per household in the city and the State

State/ District	Total Rural Urban	Total: No. of persons per room	Total: No. of persons per household	One room: Persons	One room: Males	One room: Females	One room: Average No. of persons per household	Two rooms: Persons	Two rooms: Males	Two rooms: Females	Two rooms: Average No. of persons per household	Three rooms: Persons	Three rooms: Males	Three rooms: Females	Three rooms: Average No. of persons per household
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Madras State	T	3.03	4.62	4.21	2.10	2.11	4.21	2.58	1.30	1.28	5.16	1.91	0.96	0.95	5.73
	R	3.17	4.57	4.23	2.11	2.12	4.23	2.58	1.30	1.28	5.16	1.90	0.96	0.94	5.71
	U	2.70	4.76	4.13	2.08	2.05	4.13	2.58	1.30	1.28	5.17	1.92	0.97	0.95	5.77
Madras City	U	2.92	4.91	4.22	2.17	2.05	4.22	2.75	1.41	1.34	5.49	2.12	1.12	1.00	6.35

TABLE 4–10 (*Contd*)

Persons per room and per household in the city and the State

State/District	Total Rural Urban	Four rooms: Persons	Four rooms: Males	Four rooms: Females	Four rooms: Average No. of persons per household	Five rooms and above: Persons	Five rooms and above: Males	Five rooms and above: Females	Five rooms and above: Average No. of persons per household	Rooms not stated: Average No. of persons per household
1	2	17	18	19	20	21	22	23	24	25
Madras State	T	1.59	0.80	0.79	6.34	1.16	0.61	0.55	7.55	4.35
	R	1.58	0.80	0.78	6.31	1.11	0.56	0.55	7.09	4.25
	U	1.60	0.81	0.79	6.39	1.21	0.65	0.56	8.04	5.34
Madras City	U	1.72	0.90	0.82	6.87	1.35	0.71	0.64	9.61	22.48

Manufacturing units

Based on Housing Tables E-III of Madras City, Table 4-11 has been prepared listing out the first nine industries, arranged in descending order of the total number of workshops and factories.

TABLE 4-11

MADRAS CITY

Important industries in the city

Code No.	Name of manufacturing unit	Total No. of Workshops and Factories	No. of workers in the workshops and factories							
			1	2-5	6-9	10-19	20-49	50-99	100 & above	Not stated
1	2	3	4	5	6	7	8	9	10	11
273	Tailoring	2,863	446	471	30	15	7	3	...	1,891
393	Goldsmithy	927	164	369	40	17	5	6	1	325
388	Repair of bicyeles and tricycles	781	155	196	...	...	...	...	...	430
235	Cotton weaving in handlooms	549	87	216	47	24	3	1	...	171
399	Manufacture and repair work of goods not assignable to any other group	437	48	145	23	18	19	3	5	176
369	Manufacture of sundry hardware such as buckets bolts etc.	407	19	184	77	35	17	3	4	68
200	Production of rice etc. by milling and dehusking	382	53	203	19	10	10	2	2	83
384	Repairing and servicing of motor vehicles	350	30	175	37	31	22	4	10	41
302	Printing and other work connected with printing industry	276	4	98	45	24	23	13	6	63
	Total	6,972								

These nine industries account for 64 per cent of the factories and workshops in the city. Tailoring accounts for 26 percent of the manufacturing units of Madras City. But since 66 percent of the tailoring establishments have not stated the number of persons working and the ranges '1' and '2-5' constitute 32 percent of these establishments, it is doubtful whether tailoring will lead the other industries in the number of persons employed. Even in the case of other eight industries, it can be said that though the number of establishments is numerous, their employment potential is far less than Heavy industries.

Table 4-12 gives the proportion of workshops and factories according to Divisions, Major Groups and selected Minor Groups of I. S. I. C. to 1,000 workshops and factories in the city. An explanation of the codes is given in the form of statement below the table.

TABLE 4-12

Proportion of workshops and factories in different Industrial categories in the city

Division/group	Code No.		Proportion of workshops
Divisions 2 & 3			1,000
Major Group	20		78
Minor Group		200	35
		205	22
		207	14
Major Group	21		18
Minor Group		214	6
		218	9
Major Group	22		25
Minor Group		220	20
		224	4
Major Group	23		55
Minor Group		233	2
		235	50
Major Group	24		0
	25		0
	26		1
Minor Group		264	1

TABLE 4-12 (Contd)

Proportion of workshops and factories in different Industrial categories in the city

Division/group	Code No.		Proportion of workshops
Major Group	27		273
Minor Group		273	263
		274	3
Major Group	28		38
Minor Group		281	16
		287	6
Major Group	29		5
Minor Group		292	5
Major Group	30		59
Minor Group		301	25
		302	25
Major Group	31		21
Minor Group		311	14
		313	5
Major Group	32		7
Minor Group		320	5
		323	1
Major Group	33		17
Minor Group		335	4
		336	3
Major Group	34 & 35		11
Minor Group		340	1
		343	1
		350	2
		357	2
Major Group	36		113
Minor Group		368	24
		369	37
Major Group	37		12
Minor Group		378	2
		379	4
Major Group	38		113
Minor Group		384	32
		388	72
Major Group	39		154
Minor Group		393	85
		399	40

Key to Codes used in Table 4-12

Major Group No.	Description	Minor Group No.	Description
1	2	3	4
20	Food stuffs	200	Production of rice, atta, flour, etc. by milling, dehusking and processing of crops and foodgrains
		205	Production of bread, biscuits, cake and other bakery products
		207	Production of edible fats and oils (other than hydrogenated oil)
21	Beverages	214	Production of aerated and mineral water
		218	Processing of coffee in curing works
22	Tobacco Products	220	Manufacture of bidi
		224	Manufacture of snuff
23	Textile - Cotton	233	Cotton dyeing, bleaching
		235	Cotton weaving in handlooms
24	Textile - Jute		
25	Textile - Wool		
26	Textile - Silk	264	Weaving of silk textile by handloom
27	Textile - Miscellaneous	273	Making of textile garments including raincoats and headgear
		274	Manufacture of made up textile goods except wearing apparel such as curtains, pillow cases, bedding materials, mattress, textile bags
28	Manufacture of wood and wooden products	281	Manufacture of wooden furniture and fixtures
		287	Manufacture of boxes and packing cases other than plywood
29	Paper and Paper Products	292	Manufacture of products, such as paper bags, boxes, cards, envelopes and moulded pulp goods from paper paper board and pulp
30	Printing and Publishing	301	Printing and publishing of books
		302	All other types of printing including lithography, engraving, etching, block making and other work connected with printing industry
31	Leather and leather products	311	Manufacture of shoes and other leather footwear
		313	Manufacture of leather products (except those covered by code Nos. 311, 312) such as leather upholstery, suitcases, pocket books, cigarette and key cases, purses, saddlery, whip and other articles

Key to Codes used in Table 4-12 (Contd)

Major Group No.	Description	Minor Group No.	Description
1	2	3	4
32	Rubber, Petroleum and Coal Products	320	Manufacture of tyres and tubes
		323	Manufacture of all kinds of other rubber products from natural or synthetic rubber including rubber raincoat
33	Chemicals and Chemical Products	335	Manufacture of medicines, pharmaceutical preparations, perfumes, cosmetics and other toilet preparations except soap
		336	Manufacture of soap and other washing and cleaning compounds
34 & 35	Non-metallic mineral products other than petroleum and Coal	340	Manufacture of structural clay products such as bricks, tiles
		343	Manufacture of structural stone goods, stone dressing and stone crushing
		350	Manufacture of earthenware and earthen pottery
		357	Manufacture of glass and glass products except optical and photographic lenses and glass products covered above
36	Basic Metals and their Products except Machinery and Transport Equipment	368	Enamelling, galvanising, plating (including electroplating) polishing and welding of metal products
		369	Manufacture of sundry hardwares such as G. I. pipe, wire net, bolt, screw, bucket, cutlery. (This will also include the manufacture of sundry ferrous engineering products done by jobbing engineering concerns which cannot be classified in major groups 36, 37, 38 & 39)
37	Machinery (All kinds other than Transport) and Electrical equipment	378	Manufacture of electronic equipment such as radio microphone
		379	Manufacture of electric machinery and apparatus, appliances not specified above
38	Transport Equipment	384	Repairing and servicing of motor vehicles
		388	Repairing of bicycles and tricycles
39	Miscellaneous manufacturing Industries	393	Manufacture of jewellery, silverware and wares using gold and other precious metals
		399	Manufacture and repair work of goods not assignable to any other group

Types of houses in Madras City

In Madras City, various types of houses ranging from large bungalows with 20 or 30 rooms to small one-roomed huts can be seen constructed in different architectural styles. The spacious bungalows with vast gardens lying on the banks of Cooum and Adyar built by the Nawabs stand in sharp contrast to the modern bungalows built on smaller sites. One can see the dull and drab apartments built more than 100 years ago by the side of modern houses. The traditional type of houses characteristic of South India with a central square courtyard open to the Sun, terraced as well as tiled, built 50 to 200 years ago, is found in large numbers in different parts of the city especially in the old areas. As a contrast to this can be seen the newly built residential area with individual and detached houses on small and big plots like Raja Annamalaipuram, Thyagarayanagar, Gandhinagar, Shenoynagar, Mandavelipakkam and Trustpuram and so forth. Equally significant are the thatched huts found in the slum areas. The various types of dwellings mentioned above can be classified as follows :—

i. Bungalows situated on sites varying from 1.5 grounds to 10 grounds (0·2 to 0.6 acre);
ii. Storeyed or apartment houses without backyards and spaces;
iii. Traditional houses of old type, well built with a paved central courtyard and tiled low roofing;
iv. Hutments or flimsy structures with thin walls and roofs made of cheap tiles, asbestos or galvanised iron sheets or terraced tenements with usually one or two rooms.
v. Thatched huts generally having one room with mud walls and cocoanut or palmyrah leaves for the roofing.

The percentage distribution of types of building is given below:

Bungalows	1.6
Apartment houses	15.7
Traditional houses	56.2
With central courtyard huts	9.0
Thatched huts	17.5

It is also estimated that nearly one-third of all the dwellings in Madras City need replacement or renovation.

Housing condition in slums

As one-fourth of the population of the city live in slums, it will be proper to examine in detail the conditions of housing in slums. A separate survey of slums has been conducted by the Census Organisation and the data collected can, with advantage, be discussed here. Of the 548 slums, 33 are tenements. Except in one place where the roof is thatched, in the remaining tenements the roof is pucca. The average size of a tenement house is 25' x 10'. It consists of a single room with a small verandah in front. The kitchen will be in the corner of the room. No separate latrine is provided. Water tap is common. Some of the tenements are double-storeyed. The total number of tenement houses is 4% of the slum houses.

Slums classified by nature of construction

Table 4-13 shows the slums classified by the nature of construction.

TABLE 4–13

Slums classified by the nature of house Construction

Nature of construction	No. of slums
1. Thatched huts cent per cent	141
2. Thatched huts above 75%	271
3. (a) Thatched huts above 50% & tile roofed huts above 25%	46
(b) Thatched huts above 50% & tin roofed huts above 25%	5
(c) Other cases-thatched huts above 50%	14
4. Tiled huts above 75%	11
5. (a) Tiled huts above 50% & thatched huts above 25%	19
(b) Tiled huts above 50% & tin-roofed huts above 25%	1
(c) Other Cases-tiled huts above 50%	4
6. Tin roofed huts above 75%	3
7. (a) Tin roofed huts above 50% & thatched huts above 25%	3
(b) Tin roofed huts above 50% & tile-roofed huts above 25%	...
(c) Other cases–tin-roofed huts above 50%	1
8. Huts with thatched, tiled and tin roofs above 50%	10
9. Pucca houses cent percent	11
10 Pucca houses above 75%	5
11. Pucca houses above 50%	3

141 slums consist of kutcha huts. 271 slums consist of more than 75% of the thatched huts. In 65 slums more than 50% are thatched huts. Thus more than half the dwellings are thatched shacks in 477 slums which represents 87% of the total number of slums in the city. In 11 slums tile roofed huts predominate while the rest are moderately tiled. Tin-roofed huts are found only in 7 slums. In 19 cases pucca houses exceed 50% of the total mumber of houses and they represent mostly tenements built by the Corporation. Table 4-14 gives the break-up for slum dwellings, classified by the type of roof.

TABLE 4-14

Type of roof in slums

Type of roof	Number of houses	Percentage
1	2	3
Total number of houses	59,573	100.0
Houses with thatched roof	46,934	78.8
Houses with tiled roof	7,940	13.3
Houses with tin-roof	1,294	2.2
Houses with other roof	3,405	5.7

Thatched roof is found only in 79% of the total number of houses. Next in rank comes the tile-roof with 13.3%. The share of tin-roof and terrace is insignificant. Table 4-15 gives the break-up for slum dwellings classified by the type of wall.

TABLE 4-15

Type of wall in slums

Type of wall	Number of houses	Percentage
Total No. of houses	59,573	100.00
Mud	40,505	67.99
Unburnt brick	1,261	2.12
Burnt brick	14,144	23.74
Others	3,663	6.15

68% are of mud walls which in actual practice mean piled-up earth. The huts differ in sizes, comfort and cleanliness. The cheapest of the huts is built of poles with kerosene tins and canisters beaten out flat and nailed across. Such a hut is unbearable in the sweltering heat of summer. A somewhat better type of huts has a thatched roof. The thatched roof made of palm leaves at times with a layer of paddy straw spread over is easily combustible and the mud walls frequently crumble and collapse in the monsoon rains.

People who are slightly better off have put up huts with tile-roofs resting on mud walls. Some well-to-do people who live in slums have built pucca houses. The most typical type, however is one of mud walls with a thatched roof. The design of the huts is simple. Most of them are incredibly low and squalid inside. Their height from floor to roof ranges from 4' to 10'. The huts generally consist of one room which serve all purposes. They do not have verandahs, windows or chimneys. Walls inside the hut are generally plastered with mud. In rare cases, white-washing is done with lime. Some huts do not have even mud walls; the walls are also made of thatch with poles supporting them. The huts are generally built in close proximity to one another and in surroundings that are generally un-hygienic. They lie scattered without any order. There is no light or air for the roof is low and no window is provided. There is no cleanliness, as there is no drainage; no safety, for the construction is flimsy; no privacy, as there is no permanence since the site is not owned by the slum-dweller. They are practically unfit for human habitation. The Census Report of the City of Madras, 1931 contains the following remarks.

> "A sidelight on the nature of many Madras dwellings is given by the fact that 14,000 metal number plates were issued during the enumeration. In other words, a number of dwellings existed, offering no surface on which a number could be painted, not even a substantial door post or indeed a door at all. They consist generally of a low mud wall plus a palm thatch and can be found in rows in the heart of the city and on its margins, generally associated with the depressed classes and often bearing rents of surprising dimensions."

The practice of supplying number plates still continues. Only the number of slums has increased.

The Madras Sanitary Welfare league which made a general survey of the conditions of the slums in the city in 1933 has alluded to the ill-planned and ill-kept slum houses in the following words:

"The "Cheries" are characterised by certain very definite feature. The first of these is the hopeless state of the dwelling· The huts, which are generally made of mud and thatch or of old kerosene tins, are low hovels, without any aperture for light or air except a doorway so small that one has to stoop to enter. The average size is 8 ft. by 9 ft. though many are smaller. In some "cheries" the huts are built back to back, or are separated only by the narrowest alleys, with the result that there is overcrowding of the very worst kind. In most cases, the houses are so flimsy that they afford no effective shelter either in the monsoon or in the hot weather".

Table 4–16 gives the distribution of 1,000 census households and population living in one or more rooms in 7 large cities of population over 1 million.

TABLE 4–16

Distribution of 1,000 census households and population living in one or more rooms in 7 large cities of population over 1 million

City	No regular room			1 room			2 rooms			3 rooms			4 rooms			5 rooms & more		
	Households	Population	No. per room	Households	Population	No. per room	Households	Population	No. per room	Households	Population	No. per room	Households	Population	No. per room	Households	Population	No. per room
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1. Greater Bombay	24	20	...	723	682	5	165	178	3	50	61	2	21	28	2	17	31	2
2. Calcutta	4	3	...	719	565	4	132	168	3	67	101	2	36	63	2	42	100	2
3. Delhi	7	6	...	630	532	4	235	272	3	69	93	2	33	50	2	26	47	2
4. Madras	3	3	...	675	579	4	171	191	3	72	93	2	37	52	2	42	82	1
5. Hyderabad	...	...	...	458	347	4	269	271	3	127	152	2	73	101	2	73	129	1
6. Ahmedabad	2	1	...	653	572	4	230	265	3	55	68	2	28	39	2	32	55	1
7. Bangalore	35	32	...	559	476	5	213	228	3	87	107	2	53	71	2	53	86	1

The proportion of 1 room households is the largest in Greater Bombay (723). This is closely followed by Calcutta (719). Madras (675) comes third in this regard. An idea of the relative extent of over crowding and sub-standard housing in the important cities can be had from the proportions of population living in 1 room households.

Housing Schemes

It may be of interest to examine the schemes undertaken by the Government and Corporation to improve housing in Madras City. The Table below gives details of houses built by the Corporation of Madras until 1933 with the cost of construction and the rent charged.

TABLE 4-17

Houses Built by the Corporation of Madras till 1933

Place	No. of houses	Cost of scheme in rupees	Monthly rental per house	Approximate cost of each house	Approximate per cent return per annum on capital outlay
			Rs. A.P.	Rs.	
1. Palmyrah Kuppam	50	22,500	2 0 0	450	5%
2. Old Slaughter House Road	35	14,000	0 1 0	400	...
3. Cemetery Rd.	143		1 0 0		
-do-	1	52,270	0 8 0	363	3¼%
-do-	34	13,600	0 8 0	400	1¼%
4. Kathivakkam High Rd.	36	9,550	0 1 0	265	...
5. Cochrane Basin Rd.	30	19,414	0 12 0	647	Less than 2%
6. Salai Vinayagarkoil St.	14	8,400	2 0 0	600	4%
7. Vasapmode	147	73,500	1 8 0	500	3½%
8. Koravankulam	64	43,327	0 12 0	677	Less than 1¼%
9. Harris Rd.	76	29,250	0 8 0	384	-do-
10. Sami Reddi Cheri	50	32,094	2 8 0	642	5%
-do-	11	16,500	3 8 0	1500	3%
11. Anglo Indian Model Houses	20	26,120	(av. B. 7)	1306	5%
12. Jaghannadhapuram	30	20,000	1 8 0	666	2¼%
13. Lloy'ds Road	30	19,450	1 0 0	648	1¾%
14. Krishnampet	12	7,200	0 12 0	600	1½%
15. Conran Smith Nagar	106	121,755	2 0 0	1148	2%
16. Bogipalayam	75	97,245	2 0 0	1296	Less than 2%
Total ...	964	626,175			

Source :—Report of the Royal Commission on Labour in India, 1931 – pp. 274-275.

In addition to the Schemes detailed in the table, two other Schemes for construction of tenements in Bogipalayam and Harbour Divisions were in progress in 1933.

The Corporation appointed a Special Housing Committee in August 1933 to go into the housing conditions in the City of Madras (with special reference to overcrowding, slum clearance and housing of the poorer classes) and to evolve a comprehensive housing policy for the city and report what legislative and administrative action was necessary to remedy the situation. The Committee went into the matter carefully and recommended (1) the formation of an improvement Trust (2) building of houses for housing middle class people (3) construction of tenements for housing the poorer classes (4) improvement of slum and (5) housing of beggars and homeless. This scheme was estimated to cost a crore of rupees. But nothing tangible came out of this.

The Corporation continued its policy of 'restricted intervention' in housing. Three methods were employed for improvement.

a) Replanning of sites in order to open up congested areas and provide them with roads, water, drainage, lights etc.

b) Building schemes, the development of new housing areas and

c) The erection of plinths as an alternative to houses on planned sites.

Several slum areas were opened out by the acquistion of streets, laying out roads and drains and providing water and electric lights. The Corporation did not erect any new house but it provided plans for construction.

The achievements of the Corporation between 1933-1949 are given in the following statement.

Sl. No.	Tenement	Years of construction	No. of tenements
1.	Model tenements, Model lines, Bogipalayam	1935	55
2.	-do-	1936	56
3.	-do- Additional	1937	32
4.	-do- Harbour Additional	1934	55
5.	-do- -do-	1935-36	55
6.	-do- -do-	1938	72
6. (a)	-do- Model huts in Cemetry Rd.	1939	20
7.	-do- Bunder Rama Naidu Garden	1938-39	84
8.	Tenements in Bunder Rama Naidu Gardens Additional	1941-42	84
9.	Tenements in Palmyrakuppam	1940-41	11
10.	Tenements in Seni Ammenkoil St.	1941-43	22
11.	Model Huts in Ennore Road	1941-42	40
12.	Tenements in Chellappa Mudaly St., Purasawalkam	1941-42	22
13.	Houses in Angalamman Koil St.	1941-42	9
14.	Kodambakkam Tenements	1945	50
15.	Cemetry Road. tenements	1945	50
16.	Model huts in Ayodhyakuppam South Beach Rd. 2nd Section	1945-46	10
17.	Chellappa Mudaly St. tenements	1948-49	26
18.	Bunder Rama Naidu Garden tenements	1948-49	24
19.	Tenements in Bogipalayam	1948-49	2
20.	Tenements in Kursedipuram		24
21.	Tenements in Seni Ammen koil St.		14
22.	Tenements in Robinson Park for Lower Middle class		16

Sl. No	Tenement	Year of construction	No. of tenements
	Plinths		
1.	Plinths in Cochrane Canal Road	1932–33	132
2.	-do- Lloyds Rd.	1934–35	72
3.	-do- Napier Park	1933–34	20
4.	Construction of superstructure over the existing plinths in Old Slaughter House Rd., Choolai	1946	20
5.	-do- in Tondiarpet Market and Harness and Saddle Factory	1947–48	179

The huge influx of population into the city consequent on the war and post-war developments intensified the already acute shortage of housing in the city. With a view to relieving this shortage, the Corporation of Madras decided to construct 1000 houses at a total cost of Rs. 1 crore. A Town Planning Scheme was prepared for an area of about 200 acres in Aminjikarai of which 50 acres were already owned by the Corporation. The execution of the scheme was commenced in February 1947 with a loan of Rs. 8 lakhs sanctioned by the Government. 102 houses of the following categories were constructed upto April 1949.

Type	Cost of each house excluding site Rs.	No. of houses constructed
A	43,000	6 Nos.
B	33,000	6 „
C (Original)	14,500	12 „
C (Revised)	15,500	17 „
D	11,500	47 „
E	11,500	6 „
F	12,000	6 „
G	5,500	1 „
H	4,500	1 „

Source :—The Official Handbook of the Corporation of Madras, 1950 – p. 260.

During the First and Second Five Year Plan periods, the progress made under housing is indicated below:

Under Low Income Group, Corporation completed 90 houses during the First Plan Period, and 113 houses during the Second Plan Period. Under Middle Income Group the Corporation proposed to construct 62 houses of which construction of 24 was taken up in 60–61. The construction of the remaining 38 houses is in progress. Regarding slum clearance or improvement, some schemes have been undertaken. The detailed account of these will be found in "Slums of Madras City" (Census of India, 1961, Volume IX, Part XI-C.)

The City Improvement Trust

The State Government enacted the Madras City Improvement Trust Act in 1945.

It provides for the improvement and expansion of the city by opening up congested areas, laying out or altering streets, providing open spaces for purposes of ventilation or recreation, demolishing or constructing buildings, acquiring land for the said purposes and for the re-housing of persons displaced by the execution of improvement schemes.

Twentyone schemes styled 'General Improvement Schemes' or "Street Schemes," combining in most cases, clearance of slums and provision of housing accommodation to the middle and lower middle classes in different parts of the city, were framed during 1948–49 to 1951-52. During 1952-53 to 1954-55, no new schemes were framed. Out of the 21 schemes, only nine were actually taken up for execution during 1948-49 to 1954-55, and two other sanctioned schemes were deferred (Hamilton Bridge Road Area Scheme and Kilpauk Garden Road Area Scheme).

At the end of 1954-55, most of the schemes taken up for execution had reached an advanced stage. During 1947-48 to 1954-55, the C.I.T. had sold 676 house-sites to middle class people and constructed 123 model houses for the middle class and 21 similar houses for the benefit of the low income groups at Ayanavaram, Nandanam, Mambalam, Kodambakkam and Chintadripet.

The C. I. T. undertook in 1955-56 the construction of 375 houses at a total estimated cost of Rs. 30 lakhs, and acquisition and development of lands at an estimated cost of Rs. 3.24 lakhs (since increased to Rs. 4.24 lakhs) under the L. I. G. H. Scheme of the Union Government and in the same year, it started the construction of the houses in its different scheme area and in the Corporation's T. P. Scheme area at Shenoy Nagar in Aminjikarai.

It acquired lands for development in three areas-Mambalam, Ayanavaram and Mylapore. The construction of all the 375 houses was completed in 1956-57. The development of lands was completed two years later, and 85 house-sites were formed in these years.

From 1957-58 to 1960-61, the activities of the C. I. T. enlarged considerably. It was the Chief Agency for the execution of the L. I. G. H. Schemes and the Rental Housing Schemes for the benefit of Government servants in the city. In addition to several slum clearance schemes it took up as many as 22 new schemes (including two deferred schemes) for development of lands, and provision of house-sites, and construction of houses under the L. I. G. H. scheme, of the Union Government under the Second Five Year Plan, M. I. G. H. Scheme, Rental Housing Scheme, and schemes financed purely from State Government's funds. Some of the old schemes, which had not been completed were also continued.

At the end of 1957-58, i. e. in about a little over 10 years of its existence, the C. I. T. had made available 800 developed house-sites to middle and lower classes for private house-building. 375 houses were constructed on C. I. T's plots, for the Low Income Groups and 350 houses and apartments in the public sector for being rented out to the public.

At the end of 1960-61, it had practically completed five land development schemes, 4 schemes for the construction of houses, including one Rental Housing Scheme, out of these twenty two new schemes. Most of the old schemes were also completed. The remaining 13 schemes are in progress.

The policy of the C. I. T. and the State Government has been (1) to build houses on rental basis on Government lands, and let them out to the lower middle classes on reasonable rents (Public Sector) and (2) to sell house sites and houses built on acquired lands on instalment basis to houseless middle class people (Private Sector).

With this end in view, altogether 45 schemes were framed during 1947 to 1961. Of them, 27 schemes were taken up for execution, and eight are pending sanction of Government. The remaining schemes were either dropped or deferred. The total original estimated cost of the 35 schemes is about Rs. 3.62 crores. The targets originally fixed for these schemes were 3,792 house-sites, and 1,925 houses (including tenements and apartments).

The house and house-sites made available to the public against the above target are as follows:—

Houses and apartments to be let out on rent:

(*a*) Middle class families	928	2,323
(*b*) Lower Middle Class families	593	
(*c*) Houses sold on hire purchase system	802	

House-sites for private housing - 1,544.

It also undertook and completed some remunerative enterprises, such as construction of markets, stalls, saloons, laundries, restaurant, etc.

At the request of the former C. I. T. in 1960, the Government sanctioned the scheme for the acquisition and development of the Hamilton Bridge Road area improvement scheme, (Lloyd's Road), at a cost of nearly Rs. 10.23 lakhs. The total scheme area comprises 345 grounds, of which an extent of 95 grounds is to be handed over to the Madras Telephones as requested by them. It was originally proposed to develop this area under the Land Development Schemes, and allot developed house sites to the public as in the case of the Mandavelipakkam and Mowbrays' Road Scheme areas. Subsequently, the Government decided that the land acquired in this area should be utilised only for the construction of rental houses for allotment to State and Union

Government servants and the public. It was proposed to develop in this area, a composite housing scheme with all amenities.

The following works have been sanctioned for execution in the Lloyd's Road Rental Housing Project, and they are under execution.

		Cost in lakhs Rs.
1.	Two-storeyed tenements for domestic servants 64 units	2.40
2.	Quarters for single persons- 29 units	1.11
3.	Three-storeyed apartments for low paid State Government Employees 90 units	5.20
4.	Three-storeyed flats for low-paid State Government Employees 84 units	10.28
5.	Middle Income Group flats 120 units	19.14
6.	Garages 50 units	1.90
7.	Shops and Market 3 units	2.38
8.	Community Hall and Reading Room 1 unit	1.10
9.	Ancillaries	1.49
10.	Land Development Scheme	10.00
	Total Rs.	55.00

Out of these loans, 577 house-sites have been formed. In addition, 29 houses exclusively for N. G. G. O's under the hire-purchase system, 18 rental quarters for lower middle classes, and shops, stalls, and restaurants under remunerative enterprises, were completed by the end of 1961-62.

State Housing Board

The C. I. T. Act 1950 was replaced by the Madras State Housing Board Act 1961 which came into force on 21-4-61. Under the latter Act there is a statutory Housing Board which is responsible for housing including Slum Improvement in the entire State. It is predominantly an official Board, with representatives of the Government, and Heads of various Departments. The activities of the City Improvement Trust are now taken over by the Madras Housing Unit of the State Housing Board.

The State Housing Board has proposed to acquire about 4,000 acres of land on the fringes of Madras City and develop them into 'Neighbourhoods' as follows during the Plan period.

1. Kodambakkam Pudoor Neighbourhood (Parts I, II and III). about 1,000 acres
2. South Madras Neighbourhood (Urur-Kalikundram Villages) about 410 acres
3. West Madras Neighbourhood (Aminjikarai, Villivakkam, Arumbakkam, Chinnakudal etc., villages) about 1,300 acres
4. North Madras Neighbourhood (Perambur, Vysarpadi, Erukancheri etc. villages) about 800 acres.
5. Korattur Neighbourhood—about 250 acres.

Public Works Department, Madras State

The Public Works Department of Madras State has executed certain housing schemes viz. (i) Police Housing Scheme (ii) Subsidised Industrial Housing Scheme (Government of India) (iii) Rental Housing Scheme for the State Government servants.

Co-Operative Department

The State Co-operative Department has also been active in organising House Construction Co-Operative Societies. In the City of Madras as many as 17 such Societies are functioning and their achievements are as under:

	No. of houses	value in Rs.
A. State Housing Scheme	2,062	3,34,07,595
H. I. G. Housing Scheme	51	11,74,453
L. I. G. Housing Scheme	362	42,97,133
	2,475	3,88,79,181

Madras Port Trust

The Madras Port Trust has evinced interest in providing quarters to its employees. In Tondiarpet area of the city, it has constructed 494 houses falling under four different types at a cost of Rs. 36,50,000 (estimated) between 1958 and 1961.

Reserve Bank of India

The Reserve Bank of India, Madras has also shown some interest in providing residential accommodation to a few members of its staff by constructing 4 types of quarters at Kilpauk, Madras. The construction was completed in January 1958. The details of flats constructed at a total cost of Rs. 50, 60, 350.00 are as under:

For Officers 'C' Type (3 bed rooms)	10 flats with 1776* sq. ft. floor area each
For Superintendents 'D' Type (2 bed rooms)	32 flats with 875 sq. ft. floor area each
For Clerks 'A' type (2 bed rooms)	96 flats with 749 sq. ft. floor area each
For Clerks 'B' Type (1 bed room)	84 flats with 563 sq. ft. floor area each
Total	**222**

* inclusive of 190 sq. ft. for garage.

Industrial housing scheme

The Government of India formulated the Subsidised Industrial Housing Scheme in September 1952. The Scheme contemplates the construction of tenements for the industrial workers in private industrial establishments. Financial assistance is made available by the Government of India to the State Governments and through them to other approved agencies by way of loans and grants for construction of houses. The Scheme is being implemented in this State by the following agencies:

1. State Government
2. Co-operative Societies
3. Industrial Employers

Prior to the formation of the Statutory State Housing Board, the Government were processing the housing projects under the Scheme with the assistance of the technical staff attached to the non-statutory Housing Board, which formed part of the I. L. C. Secretariat. On the formation of the statutory State Housing Board from 21-4-1961, the Government have transferred to the Board their technical staff, as well as their functions relating to the scrutiny, processing and according technical and administrative approval for all housing projects (including the projects under S. I. H. S.) costing not more than Rs. 10 lakhs. The functions, so far as they are concerned with the according of financial sanctions, and also sanctions for release of funds, have however been retained by the Government.

The Government projects under the Scheme have hitherto been executed by the Public Works Department. Now, the responsibility of executing these projects, has also devolved on the State Housing Board.

I have in brief referred to the various attempts made by the Government and the Corporation to solve the housing problem in Madras City. Their effort has been limited in scope. It has not added anything substantial to the solution of the problem. Whatever achievement has been made under housing is due to private effort which has been directed at improving the living conditions of the middle and higher classes. The problem of providing houses for the low classes still remain unsolved and will continue to be so unless positive steps are taken by the Government.

CHAPTER V

EDUCATION

When the British first settled in India, they found a network of educational institutions, both Hindu and Muslim, spread over the whole country. But during the 16th, 17th and 18th centuries the English were so engaged with trade and consolidation of their position that they did not think of the education of the Indian people. As late as 1822 Sir Thomas Munro in his famous minute said, "we have made geographical and agricultural surveys of our provinces; we have investigated their resources, and endeavoured to ascertain their population, but little or nothing has been done to learn the state of education. We have no record to show the actual state of education throughout the country".

Contribution of the British

The contribution of the British for the diffusion of education among the people of this country has been specific. We had a system of education but it was confined largely to the higher classes. It had no mass basis. No doubt, effort of the English to spread education during the 19th century had a tinge of religious propoganda in it, but it has done a lot of good to the people.

Earliest records on the subject of education in Madras by the English settlers is found in a report (the year of which is surmised to be about 1660) to the East India Company by one of its servants. The relevant portion is extracted below :

"I hope I shall not need to putt your Worships in mind of sending over, not only an able Minister, but a Schoolmaster likewise for the Education of young Children. They are both so Necessary that the Place cannot well subsist without them. If no Minister, then the French 'Padres' will have the more advantage over our Christians, if they are suffered to remaine in your Worships Towne If you please to send a Schoolmaster, many of those that now have their Education under the French 'Padres' wilbe brought to the English Schools".

The effort of the British to spread education in the early days was limited. Missionaries were, on the other hand more energetic. The contribution of missionaries to the education of people has been more conspicuous in South India than in the North.

Foundation of modern education

Sir Thomas Munro, Governor of Madras (1820-27) laid the foundation of modern education in Madras. He arranged for an educational survey of the whole Presidency. According to the report on this survey, there were 305 ordinary schools and 17 charity schools in Madras City. The whole of the latter class were probably missionary or aided schools, including the Monegar Choultry School, the twelve or thirteen schools maintained by the missionaries with funds provided by the S. P. C. K. and by other societies and one or two Government Charity Schools. Tables 5-1 and 5-2 show the population of the city in 1822 and the number of children who were under instruction in the various schools in the city in 1822.

TABLE 5-1

Population of Madras City in 1822

Males	Females	Boys	Girls	Total
109,246	144,916	79,992	81,597	415,751

There was approximately one school to every 1,000 of the population. The number of boys taught was one-fourth of the population of school-going age. Education imparted was of not much value, tending rather to burden the memory than to develop the intellect. This criticism can be directed even against the education of today.

TABLE 5-2

Male and Female Education in the City of Madras in the year 1822

Nature of Institution and Nos.		Hindu students			Muslim students			Total		
		Males	Females	Total	Males	Females	Total	Males	Females	Total
Ordinary Schools	305	4,966	127	5,093	143	..	143	5,109	127	5,236
Charity Schools	17	404	49	453	10	...	10	414	49	463
Children who received private tuition at their own houses	...	24,756	517	25,273	1,690	...	1,690	26,446	517	26,963
Total	322	30,126	693	30,819	1,843	...	1,843	31,969	693	32,662

The famous minutes of Munro and Macaulay

Munro also prepared a Minute of education and submitted it to the Court of Directors. "Whatever expenses Government may incur in the education of the people" observed Sir Thomas Munro, "will be amply repaid by the improvement of the country; for the general diffusion of knowledge is inseparably followed by more orderly habits, by increasing industry, by a taste for the comforts of life, by exertion to acquire them and by the growing prosperity of the people."

The English in introducing a new policy which was based on Macaulay's famous Minute of 1835, had two objects in view. They thought that contact with western science and political thought would bring about an Indian renaissance. They also sought to crëate an educated class from among the Indian members who would help in running the administration of the country. The scheme of higher English education did not receive any attention till the arrival of Lord Elphinston as Governor of Madras in 1838.

Earliest Institutions

Lord Elphinston issued on December 12, 1838, his famous Minute in which he proposed the establishment at Madras of a Central Collegiate Institution or University to which was attached a high school.

In April 1852, Sir Henry Pottinger, Governor of Madras, evolved a revised scheme for the establishment of Collegiate Department. College classes except in Law were opened in 1853.

The Medical School founded in 1835 was upgraded into a College in 1851. The Survey School established in 1834 was developed into a Civil Engineering School in 1859 and later in 1862 into a College. A School of Industrial Arts was established by Dr. Hunter in 1850, as a private institution which was five years later taken over by the Government and it continues even to-day as the School of Arts and Crafts.

Two important private institutions were established in the City about this time. In 1837 Mission of the Church of Scotland headed by Mr. John Anderson opened in Madras a General Assembly's School. It later grew into the Madras Christian College, now located at Tambaram and played an important role in the field of higher education in South India.

Another Private Institution worthy of mention is the Pachaiyappa's School. When Pachaiyappa Mudaliar, the Madras Merchant died in 1794, he had bequeathed a lakh of pagodas, equivalent to Rs. 3.5 lakhs to be spent on religious and charitable purposes. Nothing was done for 60 years. Sir Herbert Compton, the then Advocate General, brought the matter before the Supreme Court and obtained a decree from Supreme Court permitting the utilisation of part of the funds for establishing schools. Accordingly, a School was founded in the Black Town in 1842 which later grew into the Pachaiyappa's College now located at Chetput.

The Madras University

The creation of the University of Madras in

1857 was the well planned step in the educational policy of India. It was created by the Act, dated September 5, 1857 "for the purpose of ascertaining by means of examinations, the persons who have obtained proficiency in different branches of literature, science and art, and of rewarding them by academical degrees as evidence of their respective attainments and marks of honour proportioned thereunto". It had a Senate and Faculties of Arts, Law, Medicine and Civil Engineering.

The history of Madras University would give the history of higher education in South India. The Madras Medical College, College of Engineering and Law College existed even before the establishment of Madras University. The Madras University was founded by the Act XXVII of 1857. The Act was in operation till 1904. In 1902 the Government of India appointed a Commission to examine the working of the Universities. As a result, the Indian University Act VIII of 1904 was passed with the intention of reorganising the Universities in India, and enlarging their functions in teaching and supervision. With the establishment of diarchy in 1919, education was transferred to the Ministers. The Madras University Act VII of 1923 was passed on 1st May 1923. It gave a substantial measure of autonomy to the University. The Chancellor, the pro-Chancellor, the Vice-Chancellor, the Senate, the Syndicate, the Academic Council and the Council of Affliated Colleges constituted the body Corporate of the University. The Vice-Chancellor became a stipendiary full-time Officer appointed by the Chancellor from a panel of five names recommended by the Senate. The Authorities of the University under this Act were 1. The Senate, 2. The Syndicate, 3. The Academic Council, 4. The Faculties, 5. The Boards of Studies and 6. The Council of Affliated Colleges.

The Senate is the supreme Governing Body of the University and consists of a large number of members. Its present strength is 270. The Senate combines in itself academic and non-academic interests and meets twice a year on dates fixed by the Vice-Chancellor.

The Syndicate is the executive branch of the University. It consists of 19 members. It holds and administers the property of the University, makes ordinance and regulates all matters in accordance with the Acts.

The Academic Council is constituted by the ex-officio and other members. Its function is to advise the Senate and Syndicate on all Academic matters, to make regulations of the courses of study, and constitute Faculties in the different branches of study.

Women's Education

The Census of India report for the year 1881 remarked that "there is no doubt that the number of women who can read and write is not fully stated in the Census Schedules, because respectable women who could read when asked whether they could read and write would reply in the negative, because it is not considered respectable for a woman, to write though her ability to read would not be a blot on her character".

As such, the education of women was done at home. During the latter half of the 19th century, the missionaries began establishing elementary schools for girls. The Government of India in 1868 allotted a sum of Rs. 12,000 to be spent every year for the maintenance of Goverment Female School at each of the Presidency towns for the purpose of training teachers.

In the Madras Presidency, the creation of a special inspecting agency under Mrs. Brander for girls schools gave an impetus for the growth of elementary and secondary schools for girls. Greater attention was paid to subjects suited to girls.

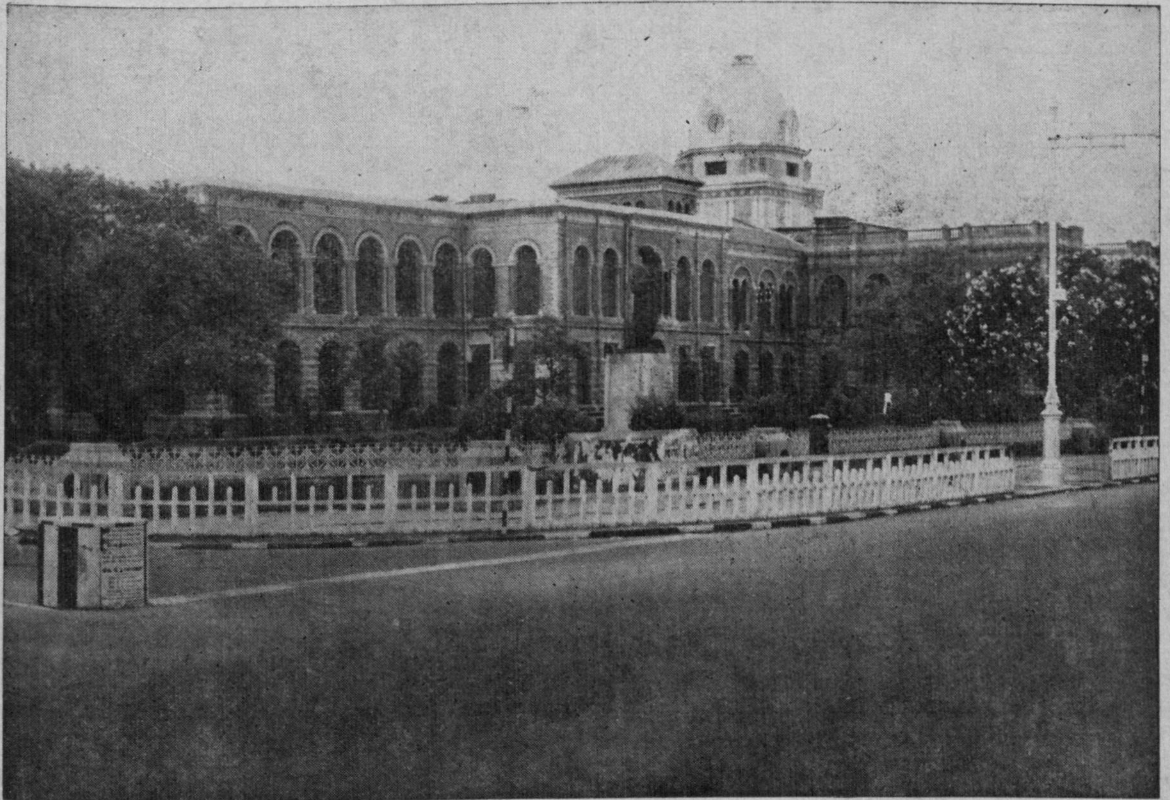
The period commencing from 1882 witnessed a marked increase in the number of Secondary and Primary Schools for girls, following Lord Ripon's reform of Local-self Government. There were only 8 High Schools for girls in 1881; their number increased to 34 by 1904.

But higher education among women has shown some improvement only in the 20th century. From 671 in the year 1923, the strength of women students pursuing higher education rose to 9,975 in 1961. There were 5 women's colleges in 1929 as against 29 in 1961. There are in the city, five Arts and Science Colleges and two professional colleges exclusively for women.

Analysis of Census data on literacy and education

The 1961 Census data which throw light on the





The Presidency College, Madras



Central Polytechnic, Adayar

present state of literacy and education may now be analysed.

Literacy is defined in the 1961 Census as the ability to read and write. The test of literacy is satisfied if a person can read and write a simple letter in his mother-tongue or in any other language. A person who knows only to read or a person who can write only figures and sign his name is treated as illiterate.

The concepts of literacy and education have undergone changes in Indian Censuses. Yet, the table 5-3 based on census figures will give a fairly good idea of the change in the literacy levels in Madras City during the period 1901 to 1961.

Literacy level

Let us now analyse the literacy level of the city. In Madras State the literacy rate is 314 per 1000 as against 240 in India. In the city, however, it is as high as 595. As may be seen from the table 5-4 the literacy rate is the highest in Madras when compared to Bombay, Calcutta and Delhi.

The literacy rates for males and females are 696 and 482 respectively in the city. In the urban areas of the State as a whole the corresponding rates are 627 and 367 respectively. In the matter of female literacy, Madras City is far ahead of all the urban areas of the State put together.

The proper index of literacy is effective literacy. In calculating this, those in the age group 0-4 are excluded. The effective literacy of Madras City is 685 (798 for males and 559 for females) as against 577 for all the urban areas of the State. In the urban sector literacy level is the highest in Madras City with Kanyakumari district following close (666). Due to ample educational facilities and the desire of parents in the city to get their children educated, the literacy level is the highest in the city.

Literates and illiterates among workers and non-workers

The table 5-5 gives the proportion of illiterates and literates of all educational levels for workers by sex in Madras State and City.

TABLE 5-3

Total, male and female literates per 10,000 of total, male and female population (including population aged 0-4) respectively in the City 1901—1961

State/ District	1961 Persons	1961 Males	1961 Females	1951 Persons	1951 Males	1951 Females	1941 Persons	1941 Males	1941 Females
1	2	3	4	5	6	7	8	9	10
Madras	5,947	6,961	4,822	5,019	6,139	3,802	4,035	5,085	2,881

1931 Persons	1931 Males	1931 Females	1921 Persons	1921 Males	1921 Females	1911 Persons	1911 Males	1911 Females	1901 Persons	1901 Males	1901 Females
11	12	13	14	15	16	17	18	19	20	21	22
3,087	4,334	1,699	3,199	4,532	1,737	2,790	4,213	1,289	2,268	3,599	914

TABLE 5-4

City	Total	Males	Females
Madras	595	696	482
Bombay	586	651	488
Calcutta	593	636	523
New Delhi & Delhi M. Corporation & Delhi Cantonment	554	628	460

It may therefore be said that Madras is the most literate city in India.

TABLE 5-5

Distribution of 1,000 workers of each sex into illiterates and literate and educated persons

State/ District	Illiterates Males	Illiterates Females	Literate & educated persons Males	Literate & educated persons Females
Madras State (Urban)	285	803	715	197
Madras City	222	556	778	444

Another table is presented below giving similar data for non-workers.

TABLE 5-6

Distribution of 1,000 non-workers of each sex by illiterates and literate and educated persons

State/ District	Illiterates		Literate & educated persons	
	Males	Females	Males	Females
Madras State (Urban)	474	604	576	396
Madras City	394	515	606	485

In the urban sector of the State we find that the proportion of illiterate males is more among non-workers than workers. The proportion of literate and educated females is also more among non-workers than workers. This trend is noticed in Madras City also.

Educational levels of the population by age groups

The following table gives the percentage of literacy in each age group:

TABLE 5-7

Age-group	Percentage of literacy Total	Males	Females
Total Population	68.55	79.76	55.94
5 — 9	66.57	69.63	63.42
10 — 14	84.65	89.57	79.43
15 — 19	77.33	86.31	68.58
20 — 24	73.58	86.14	59.91
25 — 29	67.89	82.39	52.34
30 — 34	66.70	80.73	49.61
35 — 44	62.67	77.00	43.05
45 — 59	57.48	73.72	36.83
60 +	50.55	70.70	30.45

The population of literates is least in the older age-group 60 +. The proportion is the highest in the young age-group 10-14. This trend is presumably due to the rapid improvement that had taken place in education during the last few decades and especially during the decade 1951-61 when the first two Five Year Plans were implemented. The rapid progress made in the field of women's education is clearly brought out by the above figures. It is also observed that whereas the literacy percentage in the various age-groups varies from about 50 to 85 in the case of males, it ranges from 30 to 79 in the case of females. More efforts are needed to bring female literacy on par with male literacy.

The following table which gives the distribution of 10,000 literates into the different age-groups will be of interest.

TABLE 5-8

Age-group	Total	Males	Females
Total	10,000	10,000	10,000
5 - 9	1,382	1,192	1,688
10 - 14	1,514	1,339	1,794
15 - 19	1,125	1,007	1,316
20 - 24	1,328	1,316	1,347
25 - 29	1,166	1,188	1,129
30 - 34	895	966	781
35 - 44	1,283	1,479	968
45 - 59	957	1,116	703
60 +	350	397	274

The above figures also confirm that improvement in literacy level has been due to special measures taken in the past few decades.

Classification of literate and educated persons in Census

In the urban areas, literates were classified into the following categories: Literates (without educational level), Primary or Junior basic, Matriculation or Higher Secondary, Technical Diploma not equal to degree, non-technical diploma not equal to degree, University degree or post-graduate degree other than Technical degree and Technical degree or diploma equal to degree or post-graduate degree with sub-classification for engineering, medicine, agriculture, veterinary and dairying, technology, teaching and others.

The table 5-9 gives the distribution of 1,000 workers in each sex by educational levels for all the urban areas of the State and for Madras City separately.

TABLE 5-9

Distribution of 1,000 workers in each sex by educational levels

State/District	Total		Illiterate		Literate (without educational level)		Primary or Junior basic		Matriculation or Higher secondary	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
1	2	3	4	5	6	7	8	9	10	11
Madras State (Urban)	1,000	1,000	285	803	382	99	200	55	108	35
Madras City	1,000	1,000	222	556	248	99	291	133	182	165

State/District	Technical diploma not equal to degree		Non-technical diploma not equal to degree		University degree or post-graduate degree other than technical degree	
	Males	Females	Males	Females	Males	Females
	12	13	14	15	16	17
Madras State (Urban)	2	1	1	...	17	3
Madras City	6	2	1	1	42	23

Technical degree or diploma equal to degree or post-graduate degree

State/District	Total		Engineering		Medicine		Agriculture	
	Males	Females	Males	Females	Males	Females	Males	Females
	18	19	20	21	22	23	24	25
Madras State (Urban)	5	4	2	...	1	1	...	...
Madras City	8	21	4	...	2	8	...	...

State/District	Veterinary & Dairying		Technology		Teaching		Others	
	Males	Females	Males	Females	Males	Females	Males	Females
	26	27	28	29	30	31	32	33
Madras State (Urban)	..	...	...	...	2	3	...	...
Madras city	...	...	...	...	2	13	...	...

It will be seen from the above table that in Madras City the proportion of illiterate workers is less than that of the urban areas of the State as a whole in respect of both males and females. The difference in the proportion is considerable in the case of female workers. Another important point that emerges from the above table is that in Madras City the proportions of workers with educational qualification (not mere literates) in the case of males as well as females are higher than the corresponding figures for the urban areas of the State.

Educational level of workers by industrial categories

The table 5-10 gives for Madras City the distribution of 1,000 workers in each industrial category and in each sex by educational levels.

TABLE 5–10

Distribution of 1,000 workers in each industrial category and in each sex by educational levels in Madras City

Industrial classification	Total		Illiterate		Literate (without educational level)		Primary or Junior basic	
	M	F	M	F	M	F	M	F
1	2	3	4	5	6	7	8	9
I	1,000	1,000	118	...	608	500	196	500
II	1,000	1,000	403	1,000	541	...	50	...
III	1,000	1,000	614	730	215	189	136	58
IV	1,000	1,000	438	736	320	175	226	86
V	1,000	1,000	177	570	270	125	363	171
VI	1,000	1,000	332	876	266	29	240	25
VII	1,000	1,000	139	761	265	76	309	60
VIII	1,000	1,000	245	327	193	38	252	77
IX	1,000	1,000	254	492	237	98	255	157

Industrial classification	Matriculation or Higher Secondary		Technical diploma not equal to degree		Non-Technical diploma not equal to degree		University degree or post-graduate degree other than technical degree	
	M	F	M	F	M	F	M	F
	10	11	12	13	14	15	16	17
I	59	...	...	...	...	...	19	...
II	6	...	...	...	...	...	...	...
III		2 3	1	...	...	...	6	...
IV	16	3	...	...	...	...	...	...
V	158	118	9	1	...	...	19	14
VI	112	56	13	1	1	4	14	8
VII	233	85	3	...	...	...	49	17
VIII	261	467	6	1	...	...	40	78
IX	165	194	7	3	2	..	64	26

TABLE 5-10 (Contd.)

Technical degree or diploma equal to degree or post-graduate degree

Industrial classification	Total		Engineering		Medicine		Agriculture	
	M	F	M	F	M	F	M	F
	18	19	20	21	22	23	24	25
I	...	...	...	...	...	...	...	...
II	...	...	...	...	..	...	...	...
III	3	...	2	...	...	...	...	...
IV	...	...	...	...	...	...	...	...
V	4	1	4	...	...	...	...	...
VI	22	1	22	1	...	...	...	...
VII	2	1	2	...	...	...	...	...
VIII	3	12	3	3	...	3	...	...
IX	16	30	4	...	6	11	...	...

	Veterinary & Dairying		Technology		Teaching		Others	
	M	F	M	F	M	F	M	F
	26	27	28	29	30	31	32	33
I	...	...	...	...	...	...	...	...
II	...	...	...	...	...	...	...	...
III	1	...	...	...	...	...	...	...
IV	...	...	...	...	...	...	...	...
V	...	...	...	...	...	1	...	...
VI	...	...	...	...	...	...	...	...
VII	...	...	...	...	...	1	...	...
VIII	...	...	...	...	...	6	...	...
IX	1	...	...	...	5	19	...	...

The highest proportion of illiterates is found in category III — Mining, Quarrying etc., in respect of males and category VI — Construction, in respect of females. The least proportion is noted in category VII — Trade and Commerce for males and category IX—Other Services for females. Since the categories I and II (Cultivation and Agricultural labour) for both sexes and category VIII (Transport storage and communication) for females have returned very small figures

for the city, these categories have not been taken into account while arriving at the above conclusion.

In category III among literates, the proportion of literate without educational level is the highest. The same is the case with regard to category IV—Household Industry also. The reason for this is not far to seek. These industries do not call for any high educational qualification for the majority of workers. The proportion of workers with a University degree is relatively high in categories VII (Trade and Commerce), VIII (Transport, Storage and communication) and IX (Other Services). This is as it should be in the city which has a number of Government Offices and commercial houses.

Educational levels of non-workers

The table below gives the distribution of non-workers of each sex by educational levels in Madras City.

TABLE 5-11

Proportion of non-workers in each educational level

Total		Illiterate		Literate (without educational level)		Primary or Junior basic		Matriculation or Higher Secondary	
Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
1	2	3	4	5	6	7	8	9	10
1,000	1,000	394	515	274	236	228	207	84	38

Technical diploma not equal to degree		Non-technical diploma not equal to degree		University degree or post-graduate degree other than technical degree	
Males	Females	Males	Females	Males	Females
11	12	13	14	15	16
1	N	N	N	16	4

Technical degree or diploma equal to degree or post-graduate degree

Total		Engineering		Medicine		Agriculture	
Males	Females	M	F	M	F	M	F
17	18	19	20	21	22	23	24
3	N	1	N	1	N	N	...

Technical degree or diploma equal to degree or post-graduate degree

Veterinary & Dairying		Technology		Teaching		Others	
Males	Females	M	F	M	F	M	F
25	26	27	28	29	30	31	32
N	N	N	...	1	N	N	...

Whereas in all urban areas of the State put together, the percentage of illiteracy among non-workers is 47.4 for males and 60.4 for females, in Madras City 39.4 percent among male non-workers and 51.5 percent among female non-workers are illiterates.

Education and unemployment

Out of 19,086 males seeking employment for the first time in Madras City 6,664 are in the age-group 15–19; 7,825 in the age-group 20–24 and 2,411 in the age-group 25–29. There are 1,541 females seeking employment for the first time. Out of these, 568 are in the age-group 15–19; 652 in the age-group 20-24 and 186 in the age-group 25-29.

It is observed that 12.1 percent and 83.9 per cent of the unemployed persons are respectively illiterates and literates below Matriculation or Higher Secondary standard. The table below gives the distribution of 1,000 males and females in Madras City who are unemployed in each age-group according to educational levels. The figures are self explanatory.

TABLE 5–12

Age-groups	Total un-employed		Illiterate		Literate (without educational level)		Primary or Junior basic	
	M	F	M	F	M	F	M	F
1	2	3	4	5	6	7	8	9
A 15 — 19	1,000	1,000	110	5	160	49	496	268
20 — 24	1,000	1,000	78	20	121	37	447	233
25 — 29	1,000	1,000	117	27	170	48	419	188
30 — 34	1,000	1,000	149	53	227	116	431	347
35 +	1,000	1,000	259	400	256	150	308	225
A.N.S.	1,000	...	800	...	...	...	...	...
B 15 — 19	1,000	1,000	149	25	199	74	487	401
20 — 24	1,000	1,000	91	21	165	43	469	273
25 — 34	1,000	1,000	140	48	216	48	433	436
35 — 44	1,000	1,000	170	333	270	51	378	385
45 — 59	1,000	1,000	211	389	322	167	316	389
60 +	1,000	1,000	374	633	362	133	229	67
A.N.S.	1,000	...	1,000	...	...	...	...	...

TABLE 5-12 (Contd.)

Age-groups	Matriculation or Higher Secondary		Technical diploma not equal to degree		Non-technical diploma not equal to degree		University degree or post-graduate degree other than tech. degree	
	M	F	M	F	M	F	M	F
	10	11	12	13	14	15	16	17
A 15 — 19	230	662	1	4	...	...	3	12
20 — 24	287	590	4	...	...	...	60	109
25 — 29	228	575	9	...	1	...	49	124
30 — 34	151	442	5	...	...	...	36	...
35 +	151	200	2	...	1	...	21	25
A.N.S.	200	...	...	...	...	...	...	...
B 15 — 19	162	492	...	...	...	...	3	8
20 — 24	223	519	5	...	1	...	43	128
25 — 34	168	310	5	...	...	...	34	95
35 — 44	160	205	2	...	...	...	19	26
45 — 59	133	55	1	...	2	...	11	...
60 +	82	167	2	...	2	...	9	...
A.N.S.	...	...	...	...	...	...	...	...

Technical degree or diploma equal to degree or post-graduate degree

Age-groups	Total		Engineering		Medicine		Agriculture	
	M	F	M	F	M	F	M	F
	18	19	20	21	22	23	24	25
A 15 — 19	...	...	...	...	...	...	...	...
20 — 24	3	11	2	...	1	5	...	...
25 — 29	7	38	3	...	2	16	...	...
30 — 34	1	42	...	...	...	21	...	...
35 +	1	...	1	...	...	...	...	...
A.N.S.	...	...	...	...	...	...	...	...
B 15 — 19	...	...	...	...	...	...	...	...
20 — 24	3	16	2	...	1	...	...	...
25 — 34	4	63	2	...	2	8	...	...
35 — 44	1	...	1	...	...	...	...	...
45 — 59	4	...	2	...	1	...	...	...
60 +	...	...	...	...	...	...	...	...
A.N.S.	...	...	...	...	...	...	...	...

A — Persons seeking employment for the first time

B — Persons employed before but now out of employment and seeking work

TABLE 5-12 (Contd.)

Technical degree or diploma equal to degree or post-graduate degree

	Veterinary & Dairying		Technology		Teaching		Others	
	Males	Females	M	F	M	F	M	F
	26	27	28	29	30	31	32	33
A 15 — 19	...	...	...	...	...	...	...	...
20 — 24	...	...	...	...	...	6	...	...
25 — 29	1	...	1	...	...	22	...	...
30 — 34	...	...	...	...	1	21	...	...
35 +	...	...	...	...	...	...	...	...
A. N. S.	...	...	...	...	...	...	...	...
B 15 — 19	...	...	...	...	...	...	...	...
20 — 24	...	...	...	...	...	16	...	...
25 — 34	...	...	...	...	...	55	...	...
35 — 44	...	...	...	...	...	...	...	...
45 — 59	...	...	1	...	...	...	...	...
60 +	...	...	...	...	...	...	...	...
A. N. S.	...	...	...	...	...	...	...	...

Educational Facilities

With this background, the details pertaining to educational facilities available in the city may be of interest. Statistics have been collected from the Madras University in respect of colleges and from the Office of the Director of Public Instructions, Madras in respect of Schools. The figures for the years 1947 and 51 relate to the erstwhile composite State of Madras, i.e. Madras including Andhra and the districts of Malabar and South Canara. The figures for the year 1956 relate to Madras State as it was then constituted. So far as colleges are concerned only those colleges affliated to the Madras University alone have been taken into account. In other words the statistics exclude Colleges affliated to other Universities. The number of Arts & Science Colleges which were once affliated to Madras University but which severed their affliation consequent on the implementation of the State Re-organisation Committee's recommendations is 29 and the number of such Professional Colleges is 3. Since then the activities of the Madras University are confined to the territorial limits of the present Madras State. The figures for the year 1961 relate to the present territorial limits of Madras State, now also called 'Tamil Nadu'.

Types of institutions

The various types of institutions for men and women in the State and in the city are given separately in Table 5-13.

TABLE 5-13

Types of Educational Institutions

Sl. No.	Institutions	Year	Number in Madras State For males	For females	Total	Number in Madras City For males	For Females	Total
1	2	3	4	5	6	7	8	9
1.	Arts Colleges	1947	42	10	52	5	4	9
		1951	50	13	63	7	4	11
		1956	53	20	73	8	5	13
		1961	44	16	60	8	5	13
2.	Professional Colleges	1947	12	3	15	8	2	10
		1951	19	4	23	9	2	11
		1956	28	4	32	9	2	11
		1961	30	5	35	10	2	12
3.	Secondary Schools	1947	Not available					
		1951	1,119	222	1,341	41	29	70
		1956	838	182	1,020	50	30	80
		1961	1,127	198	1,325	54	30	84
4.	Elementary Schools	1947	Not available					
		1951	38,030	...	38,030	414	...	414
		1956	24,722	...	24,722	492	...	492
		1961	23,094	...	23,094	525	...	525
5.	Basic Schools	1947	Not available					
		1951	402	...	402	2	...	2
		1956	2,405	...	2,405	7	...	7
		1961	4,004	...	4,004	21	...	21

Source: (1) University of Madras and (2) Office of the Director of Public Instructions, Madras

Out of 60 Arts Colleges in the State 13 are located in Madras City. The number of Professional Colleges has registered a steep increase. As against 15 such colleges in 1947 we are now having 35 colleges in the State. Another interesting feature noticed is that the trend of concentration of such colleges in the city has been reversed. In 1947, out of the total number of 15 Professional Colleges, 10 were located in the city; but now only 12 out of 35 such colleges are in the city.

The progress of women's education could well be observed from the increase in number of women's colleges. As against 10 women's colleges in 1947, we are now having 16 colleges in the State.

Yet another notable feature is the spectacular increase in the number of Basic Schools. From 402 in 1951, they have shot up to 4,004 in 1961 in the State. In the city as against 2 in 1951, there are at present 21 Basic Schools. This reflects the policy of the Government in encouraging Basic system of education particularly in rural areas.

Management of Colleges

The management of Arts and Professional colleges for men and women in the State and in the city is indicated in table 5-14.



The Post Graduate Student's Hostel, Marina

TABLE 5-14

Colleges Classified According to Management

Sl No.	Classification	Year	No. of Arts Colleges in				No. of Professional Colleges in				Total			
			Madras State		Madras City		Madras State		Madras City		Madras State		Madras City	
			Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1.	Government	1947	9	2	2	2	9	...	6	...	18	2	8	2
		1951	10	1	2	1	11	1	6	1	21	2	8	2
		1956	9	1	2	1	14	2	6	1	23	3	8	2
		1961	7	1	2	1	15	2	7	1	22	3	9	2
2.	Private	1947	33	8	3	2	3	3	2	2	36	11	5	4
		1951	40	12	5	3	8	3	3	1	48	15	8	4
		1956	44	19	6	4	14	2	3	1	58	21	9	5
		1961	37	15	6	4	15	3	3	1	52	18	9	5

The efforts of the Government in the establishment of Arts Colleges stand excelled by private efforts; for the number of such colleges run by private efforts is more than six times of that run by the Government.

In the domain of professional education the Government have played a dominant role. Although the number of such colleges run by the Government equal that run by private efforts, the former monopolise fields of education like medicine, agriculture, veterinary and law. Professional colleges call for specialised skills and costly equipments which the Government alone can provide. Professional education has come to receive increasing attention with the advent of Five Year Plans which require well-trained professionals to bring them to successful fruition.

About 50 percent of the Professional colleges maintained by the Government are concentrated in Madras City whereas only 22 percent of such colleges managed by private bodies are located in the city. Perhaps the position which Madras City commands as the seat of the State Government and the interest evinced in its development must have influenced the policy of the Government.

Management of Schools

The Management of schools in the State and in the city is furnished in table 5-15. Secondary Schools are classified by Government as Boy's and Girl's Schools. Elementary and Basic Schools are commonly known as boys' schools but girls are also admitted in them.

Local bodies claim a large share in the management of schools.

Teaching Staff in Schools

The number of trained and untrained teachers with sex break-up in the Secondary, Elementary and Basic Schools in the State and in the city is given in table 5-16.

TABLE 5–15

Schools Classified According to Management

Sl. No.	Classification	Year	Secondary: Madras State Boys' School	Secondary: Madras State Girls' School	Secondary: Madras City Boys' School	Secondary: Madras City Girls' School	Elementary: Madras State	Elementary: Madras City	Basic: Madras State	Basic: Madras City
1	2	3	4	5	6	7	8	9	10	11
1.	Government	1947	Not available							
		1951	23	58	2	4	1,830	6	18	...
		1956	27	33	3	4	1,139	7	178	...
		1961	73	27	4	4	1,221	7	305	...
2	Local Bodies	1947	Not available							
		1951	641	38	2	...	17,279	221	249	...
		1956	373	27	2	...	13,706	265	1,112	4
		1961	580	37	2	1	15,630	296	2,159	9
3.	Private	1947	Not available							
		1951	455	126	37	25	18,921	187	135	2
		1956	438	122	45	26	9,877	220	1,115	3
		1961	474	134	48	25	6,243	222	1,540	12

TABLE 5-16

Teaching Staff in Schools

Sl. No.	Nature of School	Year	Madras State				Madras City			
			Trained		Untrained		Trained		Untrained	
			Males	Females	Males	Females	Males	Females	Males	Females
1	2	3	4	5	6	7	8	9	10	11
1.	Secondary Schools	1947	Not available							
		1951	18,196	3,483	4,544	505	...	...	...	...
		1956	15,637	4,513	2,192	356	...	...	...	...
		1961	20,941	6,274	1,878	514	1,725	213	74	6
2.	Elementary Schools	1947	Not available							
		1951	95,663	30,671	9,695	1,318	1,777	2,254	68	74
		1956	63,206	31,393	6,240	456	1,759	3,037	41	37
		1961	55,399	28,961	3,247	378	1,776	4,421	30	19
3.	Basic Schools	1947	Not available							
		1951	1,198	239	53	20	...	...	...	...
		1956	7,385	3,585	216	28	...	...	...	...
		1961	12,469	8,173	476	85	57	187	...	...

It is evident from the figures that there is a declining trend in the employment of untrained hands. This is due to the insistance of Government to employ trained teachers in the educational institutions.

Women are enrolling themselves in large numbers as teachers, for the obvious reason that the profession suits them well. The total number of male teachers in Elementary and Basic Schools in 1951 i.e. in the erstwhile composite State of Madras was 106,609 which figure has come down to 71,591 in the present Madras State. But the figures for women tell a different story. The number of women teachers has increased from 32,248 to 37,597 during the corresponding period.

Student Strength

The strength of students in the various types of educational institutions in the State and in the city is given in table 5-17.

TABLE 5-17

Scholars in the various types of educational Institutions

Sl. No.	Institutions	Year	Madras State			Madras City		
			Males	Females	Total	Males	Females	Total
1	2	3	4	5	6	7	8	9
1.	Arts Colleges	1947	23,497	3,908	27,405	5,171	974	6,145
		1951	34,074	5,211	39,285	7,890	2,032	9,922
		1956	41,863	8,579	50,442	9,770	3,101	12,871
		1961	34,607	8,906	43,513	8,902	3,841	12,743
2.	Professional Colleges	1947	3,652	716	4,368	3,064	474	3,538
		1951	5,209	877	6,086	3,988	605	4,593
		1956	6,633	1,101	7,734	4,100	779	4,879
		1961	11,810	1,742	13,552	6,487	1,039	7,526
3.	Secondary Schools	1947	Not available					
		1951	526,014	114,912	640,926	36,708	15,694	52,402
		1956	403,782	131,995	535,777	41,712	21,329	63,041
		1961	507,884	200,041	707,925	49,340	26,988	76,328
4.	Elementary Schools	1947	Not available					
		1951	2,569,816	1,457,575	4,027,391	65,557	50,418	115,975
		1956	1,924,874	1,134,428	3,059,302	81,542	60,002	141,544
		1961	1,807,027	1,080,511	2,887,538	109,876	94,227	204,103
5.	Basic Schools	1947	Not available					
		1951	26,822	14,507	41,329	183	90	273
		1956	206,244	127,097	333,341	1,126	891	2,017
		1961	407,781	262,821	670,605	5,321	3,285	8,606

At the collegiate level the strength of students in Arts and Science Colleges has increased by one and a-half times after Independence while that in Professional Colleges has increased three-fold. The student population in basic schools has multiplied itself 16 times after Independence.

Professional Colleges

Statistics regarding the different types of Professional Colleges in the city and the scholars in them are given in Table 5-18.

TABLE 5-18

Scholars in Professional Colleges

Sl. No.	Nature of College	Year	No. of institutions	Students in Madras City	
				Males	Females
1	2	3	4	5	6
1.	Law	1947	1	607	...
		1951	1	1,078	20
		1956	1	1,159	32
		1961	1	1,069	33
2.	Medicine	1947	2	1,103	330
		1951	2	1,304	369
		1956	2	1,444	466
		1961	3	2,329	575
3.	Educational	1947	4	181	140
		1951	4	209	150
		1956	4	1,991	175
		1961	4	270	290
4.	Engineering	1947	1	904	2
		1951	1	785	4
		1956	1	593	...
		1961	1	1,422	2

TABLE 5-18 (Contd.)

Scholars in Professional Colleges

Sl. No.	Nature of College	Year	No. of institutions	Students in Madras City	
				Males	Females
1	2	3	4	5	6
5.	Agricultural	1947	...	...	...
		1951	...	...	...
		1956	...	...	...
		1961	...	...	...
6.	Technology	1947	Not available		
		1951	1	78	...
		1956	1	98	...
		1961	1	305	...
7.	Forestry	1947	...	...	...
		1951	...	...	...
		1956	...	...	...
		1961	...	...	..
8.	Veterinary	1947	1	269	2
		1951	1	286	8
		1956	1	359	5
		1961	1	887	5
9.	Physical Education	1947	...	...	...
		1951	1	248	54
		1956	1	248	100
		1961	1	205	134

Special Schools

Table 5-19 exhibits the number of special schools and their strength both in the State and in the city.

TABLE 5–19

Scholars in Special Schools

Nature of institutions	Year	No. of institutions Males	No. of institutions Females	Madras State strength Males	Madras State strength Females	No. of institutions Males	No. of institutions Females	Madras City strength Males	Madras City strength Females
Arts and Crafts	1947				Not available				
	1951	3	23	400	991	1	6	282	285
	1956	...	18	5	983	...	7	...	368
	1961	...	17	7	834	...	7	...	292
Normal Training	1947				Not available				
	1951	56	72	10,475	7,443	3	3	364	398
	1956	40	4	5,246	5,513	4	4	546	671
	1961	10	3	1,793	1,808	2	3	458	534
Basic Training	1947				Not available				
	1951	36	12	3,077	1,025	...	1	...	104
	1956	57	27	5,639	2,098	...	3	...	193
	1961	75	49	10,547	6,776	...	4	...	516
Technical	1947				Not available				
	1951	12	...	4,329	2	4	...	2,014	...
	1956	10	...	4,778	...	4	...	2,497	5
	1961	24	...	6,937	...	7	...	1,721	...
Commercial	1947				Not available				
	1951	314	...	14,891	1,164	49	...	3,614	496
	1956	361	...	20,275	2,493	83	...	7,412	1,232
	1961	415	...	22,745	5,445	104	...	8,117	2,342
Industrial	1947				Not available				
	1951	36	...	1,973	43	4	...	269	2
	1956	30	1	2,175	132	9	1	843	105
	1961	53	1	5,276	425	11	1	1,323	276
Reformatory	1947				Not available				
	1951	9	2	3,036	520	1	2	Not available	
	1956	6	3	2,631	725	2	3	-do-	
	1961	7	4	2,738	872	2	2	-do-	
For Physically Handicapped	1947				Not available				
	1951	18	1	730	337	2	...	-do-	
	1956	14	1	1,004	418	2	...	-do-	
	1961	12	...	1,115	536	2	...	-do-	
Adult Literacy	1947				Not available				
	1951	1,133	24	29,924	1,202	3	1	75	44
	1956	1,529	...	41,064	4,058	...	...	...	...
	1961	949	...	21,160	4,272	...	...	...	...

Arts and Science Colleges

All Arts Colleges in the city are first-grade colleges teaching both Arts and Science subjects. Out of 14 Colleges 9 coach for post-graduate courses.

Reviewing the position based on student strength we find that Loyala College tops the list. Among womens' colleges the pride of place goes to Stella Maris College. The fact that both are privately managed missionary institutions bear testimony to the keen interest evinced by private efforts, especially the missionary bodies, in higher education.

CHAPTER VI

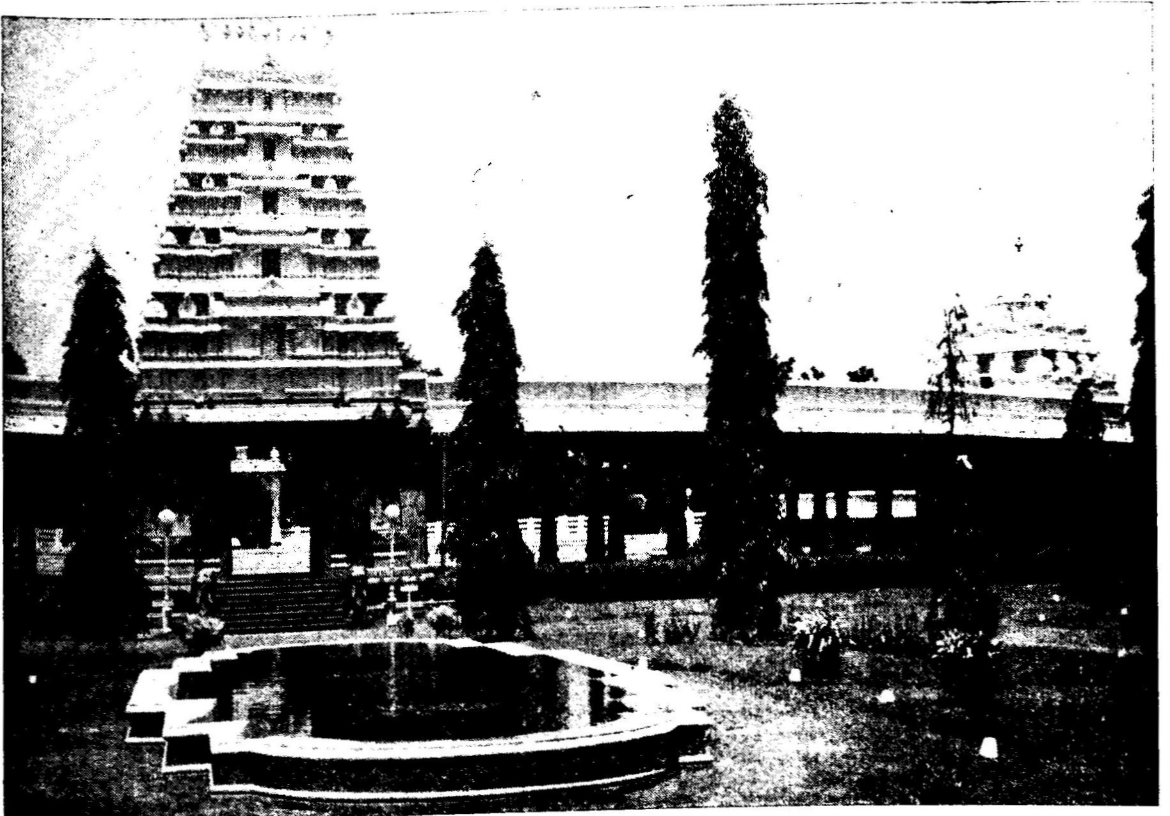
LANGUAGE AND RELIGION

Though Madras City is cosmopolitan, its main language is Tamil which is spoken by 71 percent of the people. It is essentially Tamil in culture and has played an important role in the renaissance of Tamil Nadu.

According to Census returns, 98 languages have been returned in Madras City. They have been reduced to 79 after reclassification. The following are the details.

TABLE 6-1

	Language	No. of Speakers
1.	African	4
2.	Annamese	1
3.	Arabic	63
4.	Assamese	29
5.	Badaga	50
6.	Belgian	1
7.	Bengali	1,296
8.	Bhutani	2
9.	Burmese	70
10.	Cambodian	9
11.	Chinese	119
12.	Coorgi/Kodagu	113
13.	Czechoslovakian	2
14.	Danish	17
15.	Dogri	6
16.	Dutch	5
17.	English	17,540
18.	Flemish	16
19.	French	104
20.	Gaelic	1
21.	German	77
22.	Goanese	11
23.	Gorkhali	15
24.	Greek	72
25.	Gujarati	11,622
26.	Hebrew	2
27.	Hindi	16,195
28.	Hindustani	84
29.	Hungarian	6
30.	Irish	10
31.	Italian	44
32.	Japanese	62
33.	Kachchi	134
34	Kannada	15,059
35.	Kashmiri	62
36.	Konkani	2,697
37.	Korava	25
38.	Kurumba	42
39.	Kuruvikkaran	29
40.	Latin	6
41.	Lushei	1
42.	Maithili	12
43.	Malay	15
44.	Malayalam	57,925
45.	Maltese	4
46.	Manipuri	6
47.	Marathi	14,025
48.	Marwari	3,031
49.	Multani	46
50.	Nepali	628
51.	Oriya	275
52.	Pahari	15
53.	Pashto/Afgani	98
54.	Persian	90
55.	Polish	5
56.	Portuguese	20
57.	Punjabi	1,488
58.	Rajasthani	174
59.	Roumanian	2
60.	Russian	1
61.	Sanskrit	31
62.	Saurashtra	4,724



The Gandhi Mandap, Guindy

	Language	No. of Speakers
63.	Siamese	12
64.	Sindhi	5,015
65.	Singhalese	106
66.	Spanish	8
67.	Swedish	5
68.	Swiss	6
69.	Tamil	1,226,621
70.	Telugu	244,632
71.	Tibetan	8
72.	Toda	1
73.	Tulu	2,196
74.	Urdu	102,208
75.	Vietnamese	1
76.	Yugoslavia	1
77.	Unclassified*	3
		1,729,141

* Bithlanean 1
Sigitvia 1
Vaipaki 1

The distribution of population by linguistic families will be of interest. As may be seen from the followining table, Dravidian family with 89.45 percent of the city's population leads. Indo-European (Indian) and Indo-European (Foreign) with 9.44 and 1.04 percent of the population of city come next in the order. The other linguistic families have a very low proportion of the population.

TABLE 6–2

Distribution of population by linguistic families and their percentages to total population

Linguistic family	No. of languages	No. of Speakers	Percentage of Speakers
(1)	(2)	(3)	(4)
Dravidian	10	1,546,664	89.4468
Indo-European (Indian) **	23	163,209	9.4387
Indo-European (Foreign)	21	17,943	1.0377
Indo-European (Non-Indian)	5	937	0.0542
Tibeto-Chinese	9	220	0.0127
Austric	2	24	0.0014
Semito-Hamitic	3	69	0.0040
Ural-Altaic	1	6	0.0004
Japanese-Korean	1	62	0.0036
African-Negro	1	4	0.0003
Unclassified*	3	3	0.0002
	79	1,729,141	100.0000

** Pahari (.17) has been included in Indo-European (Indian) group.

*Bithlanean – 1, Sigitvia-1 and Vaipaki-1.

Indian Languages

The following tables present the strength of the languages of the Dravidian family and Indo-European (Indian) family in the city.

TABLE 6–3

Speakers of languages in the Dravidian family and their percentage to the group total

Language of the Dravidian Family	Number of Persons	Percentage of total speakers of the Group
(1)	(2)	(3)
Badaga	50	N
Coorgi-Kodagu	113	0.01
Kannada	15,059	0.97
Korava	25	N
Kurumba	42	N
Malayalam	57,925	3.75
Tamil	1,226,621	79.31
Telugu	244,632	15.82
Toda	1	N
Tulu	2,196	0.14
Total	1,546,664	100.00

(N : Denotes Negligible figures).

Urdu with 62.6 percent of the total speakers of Indo-European (Indian) family leads the other languages in the group. Next to Urdu comes Hindi (9.9 percent).

TABLE 6–4

Speakers of languages in the Indo-European (Indian) family

Languages of the Indo-European (Indian) Family	Number of persons	Percentage to total speakers of this group
(1)	(2)	(3)
Bengali	1,296	0.7941
Gujarati	11,622	7.1209
Hindi	16,195	9.9229
Hindustani	84	0.0515
Kachchi	134	0.0821
Konkani	2,697	1.6525
Marathi	14,025	8.5933
Marwari	3,031	1.8571
Oriya	275	0.1685
Punjabi	1,488	0.9117
Rajasthani	174	0.1066
Sanskrit	31	0.0190
Saurashtra	4,724	2.8944
Sindhi	5,015	3.0727

TABLE 6–4 (Contd)

Speakers of languages in the Indo-European (Indian) family

Languages of the Indo-European (Indian) Family	Number of persons	Percentage to total speakers of this group
(1)	(2)	(3)
Urdu	102,208	62.6240
Kashmiri	62	0.0380
Multani	46	0.0282
* Others	102	0.0625
Total	163,209	100.0000

* Others		
Goanese	—	11
Kuruvikkaran	—	29
Maithili	—	12
Pahari	—	15
Dogri	—	6
Assamese	—	29
		102

Non-Indian languages

Speakers of non-Indian languages form a very small percentage of the total population of the city. Non-Indian languages in the city have been classified in the following table.

TABLE 6–5

Speakers of Non-Indian languages by families

Linguistic family or group	No. of persons speaking languages included in the group	Percentage to total number of persons speaking non-Indian languages
(1)	(2)	(3)
Total speakers of non-Indian languages	19,265	100.00
Indo-European languages (Non-Indian & Foreign)	18,880	98.00
Tibeto-Chinese	220	1.14
Austric	24	0.13
Semito-Hamitic	69	0.36
Japanese-Korean	62	0.32
African-Negro	4	0.02
Ural-Altaic	6	0.03

It will be seen that Indo-European languages of Non-Indian origin constitute 98 percent. Next comes Tibeto-Chinese with 1.14 percent. If languages which have a spoken strength of 20 or more are taken into consideration, the Indo-European (non-Indian) language group consists of 10 languages. Their strength varies from 20 under Portuguese to 17,540 under English. English accounts for 92.9 percent of speakers belonging to this group. The composition of Indo-European languages is given in the following table.

TABLE 6–6

Speakers of languages of Indo-European (Non-Indian) family

Language of the Indo-European (Non-Indian) linguistic family	No. of persons speaking the language	Percentage to total speakers of the group
(1)	(2)	(3)
Total Speakers of the group	18,880	100.00
English	17,540	92.90
Nepali	628	3.33
Singhalese	106	0.56
French	104	0.55
German	77	0.41
Pashto	98	0.52
Persian	90	0.48
Italian	44	0.23
Greek	72	0.38
Portuguese	20	0.11
Others *	101	0.53

* Others		
Dutch	—	5
Flemish	—	16
Danish	—	17
Swedish	—	5
Gorkhali	—	15
Swiss	—	6
Latin	—	6
Roumanian	—	2
Spanish	—	8
Gaelic	—	1
Irish	—	10
Russian	—	1
Yugoslavia	—	1
Belgian	—	1
Czechoslovakian	—	2
Polish	—	5
		101

The following table will give an idea of the Indian languages with a spoken strength of 20 or more in the city. With the languages arranged in the decreasing order of their strength, the table gives the percentages of speakers of each language to total city population as well as to total speakers of Indian languages.

TABLE 6–7

Languages arranged in order of decreasing strength

Indian language returned as having spoken strength of 20 or more	Spoken Strength	Percentage of speakers to total city population	Percentage to total speakers of Indian languages
(1)	(2)	(3)	(4)
Tamil	1,226,621	70.9380	71.7374
Telugu	244,632	14.1475	14.3070
Urdu	102,208	5.9109	5.9775
Malayalam	57,925	3.3499	3.3877
Hindi	16,195	0.9365	0.9471
Kannada	15,059	0.8708	0.8807
Marathi	14,025	0.8110	0.8202
Gujarati	11,622	0.6721	0.6797
Sindhi	5,015	0.2900	0.2932
Saurashtra	4,724	0.2731	0.2762
Marwari	3,031	0.1752	0.1772
Konkani	2,697	0.1559	0.1577
Tulu	2,196	0.1269	0.1284
Punjabi	1,488	0.0860	0.0870
Bengali	1,296	0.0749	0.0757
Oriya	275	0.0159	0.0160
Rajasthani	174	0.0100	0.0101
Kachchi	134	0.0077	0.0078
Coorgi	113	0.0065	0.0066
Hindustani	84	0.0048	0.0049
Kashmiri	62	0.0035	0.0036
Badaga	50	0.0028	0.0029
Multani	46	0.0026	0.0026
Kurumba	42	0.0024	0.0024
Sanskrit	31	0.0017	0.0018
Kuruvikkaran	29	0.0016	0 0016
Assamese	29	0.0016	0.0016
Korava	25	0.0014	0.0014

Next to Tamil, the regional language, comes Telugu with 244,632 speakers. The gap between the number of speakers of Tamil and Telugu is, however, very wide. Urdu and Malayalam come after Telugu with 102,208 and 57,925 speakers respectively.

Among the foreign languages spoken in this city, English is the most important. It may be recalled that the city had been the head quarters of the British administration from the middle of the 17th century upto 1947, when the country attained independence. This accounts very much for the popularity of the English language among the foreign languages. The following table shows the foreign languages spoken in the city, their strength and percentage to total speakers of foreign languages enumerated in the city.

TABLE 6–8

Foreign languages arranged in order of decreasing strength

Foreign languages with speakers strength of five or more	Spoken strength according to 1961 Census	Percentage to total speakers of foreign languages in the city
(1)	(2)	(3)
English	17,540	91.04
Nepali	628	3.26
Chinese	119	0.62
Ceylonese	106	0.55
French	104	0.54
Afghani	98	0.51
Persian	90	0 47
German	77	0.40
Greek	72	0.37
Burmese	70	0.36
Arabic	63	0.33
Japanese	62	0.32
Italian	44	0.23
Portuguese	20	0 10
Danish	17	0.09
Flemish	16	0.08
Malay	15	0.08
Gorkhali	15	0.08
Siamese	12	0.06
Irish	10	0.05
Combodian	9	0.05
Spanish	8	0.04
Tibetan	8	0.04
Hungarian	6	0.03
Swiss	6	0.03
Manipuri	6	0.03
Latin	6	0.03
Dutch	5	0 0?
Polish	5	0.02
Swedish	5	0.02

As may be seen from the above table, foreign language speakers other than English speaking

form together only about 9 percent of the total speakers of foreign languages. Nepali speaking population constitute 3.26 percent. Most of these people are serving as watchmen in commercial houses and private bungalows in the city.

The percentage increase during the decade 1951-61 of speakers of ten major language is given in the following table.

TABLE 6-9

Percentage Speaking 10 Major languages to total population for Madras City 1951-1961

Languages	Percentage 1951	1961
Tamil	67.92	70 94
Telugu	16.55	14.15
Kannada	1.12	0.87
Malayalam	2.83	3.35
English	1.33	1.01
Badaga	...	N
Saurashtra	...	0.26
Marathi	0.80	0 81
Hindi	1.63	0.94
Urudu	6.32	5.91

The percentages in respect of all languages except Tamil and Malayalam have decreased.

Bilingualism

A number of people enumerated in the city have taken to speaking languages other than their mother-tongue. According to the 1961 Census returns, out of 1,729,141 persons in the city as many as 533,750 or 30.9 percent of the city's population use another language as subsidiary. The corresponding percentage for 1951 was about 24 percent. The following table gives the percentage of persons speaking subsidiary language among the persons of major mother-tongues in the city.

TABLE 6-10

Speakers with subsidiary language

Language	Total Speakers	Speakers with subsidiary language	Perentage of speakers with subsidiary languages to total speakers
(1)	(2)	(3)	(4)
Tamil	1,225,621	254,927	20.800
Telugu	244,632	133,178	54.440

TABLE 6-10 (Contd)

Speakers with subsidiary language

Language	Total Speakers	Speakers with subsidiary language	Percentage of speakers with subsidiary languages to total speakers
(1)	(2)	(3)	(4)
Urdu	102,208	45,393	44.412
Malayalam	57,925	38,229	65.997
English	17,540	10,657	60.758
Hindi	16,195	8,147	50.305
Kannada	15,0[illegible]9	11,038	73.298
Marathi	14,025	9,753	69.540
Gujarati	11,622	6,928	59.611
Sindhi	5,015	3,157	62.951
Saurashtra	4,724	3,271	69.242
Marwari	3,031	1,635	53.942
Konkani	2,697	2,145	79.532
Tulu	2,196	1,323	60.245
Punjabi	1,488	1,116	75.000
Bengali	1,296	1,021	78.780

People in general, have to speak a language other than their mother-tongue by force of circumstances. Among the Tamil-speaking people, therefore, the percentage of speakers of subsidiary language is the lowest (20.8 percent).

Tamil and English are the most popular subsidiary languages in the city. Their importance among bilingualists of major language speakers in the city will be evident from the following table.

TABLE 6-11

Percentage of bilingualists using Tamil & English

Language	Persons using Tamil as sub. language	Percentage to total bilingualists in the group	Persons using English as sub.language	Percentage to total bilingualists in the group
(1)	(2)	(3)	(4)	(5)
Tamil	...	...	219,711	86.18
Telugu	104,243	78.27	27,389	20.57
Urdu	31,484	69.36	11,406	25.13
Malayalam	23,503	61.48	13,796	36.09
English	8,944	83.93	..	...
Hindi	4,550	55.85	3,024	37.12
Kannada	6,551	59.35	3,843	34.82
Marathi	6,291	64.50	2,513	25.77
Gujarati	1,432	20.67	3,337	48.17
Sindhi	518	16.41	1,817	57.55

TABLE 6-11 (Contd)

Percentage of bilingualists using Tamil & English

Language	Persons using Tamil as sub. language	Percentage to total bilingualists in the group	Persons using English as sub.language	Percentage to total bilingualists in the group
(1)	(2)	(3)	(4)	(5)
Saurashtra	2,709	82.82	481	14.70
Marwari	384	23.49	338	20.67
Konkani	585	27.27	1,188	55.38
Tulu	988	74.68	165	12.47
Punjabi	115	10.30	732	65.59
Bengali	143	14.01	630	61.70

Religion

About 85 percent of the population of the city are Hindus in 1961. Muslims constitute 7.5 per cent and Christians 6.9 percent. People of all the other religions together constitute only 0.6 percent. Table 6–12 gives the percentage distribution of population by religion.

TABLE 6–12

Percentage distribution of population by religion, 1961

Total population	100.00
Hindus	84.96
Muslims	7.49
Christians	6.90
Jains	0.52
Sikhs	0.04
Jews	...
Zoroastrains	0.01
Buddhists	0.02
Other religions and persuasions	0.06
Religion not stated	...

While the city's population has increased by 22.1 percent during the decade 1951–61, the Hindus have recorded an increase of 27.1 per cent. The number of Christians has increased by 8.3 percent and the Muslim population has decreased by 7.7 percent. The percentage increase during 1951-61 of population religion-wise is shown in the table below.

TABLE 6-13

Percentage increase in religious group during 1951-1961

Religious groups	Number of persons		Percentage increase during 1951-1961
	1951	1961	
Total population	1,416,056	1,729,141	22.11
Hindus	1,155,722	1,469,061	27.11
Muslims	140,319	129,463	— 7.74
Christians	110,168	119,282	8.27
Jains	6,330	9,045	42.89
Sikhs	1,011	710	—29.77
Buddhists	955	366	—61.68
Others	',551	1, 214	—21.73

Sex ratio

The sex ratio, i.e. number of females per 1,000 males has decreased from 921 to 901 for the general population. In the case of Hindus also, it has decreased. In respect of Christians, it has increased. The following table gives the sex ratio of the population religion-wise.

TABLE 6-14

Percentage of females per 1000 males by religion — 1951 and 1961

Religion	Proportion of females per 1000 males	
	1951	1961
Total population	921	901
Hindus	944	905
Christians	860	954
Muslims	820	821
Jains	584	755
Sikhs	275	749

Temples

Madras City is notedfor its numerous temples, many of which have existed for some centuries.

A special survey of temples was undertaken as part of the 1961 Census programme. There were 288 temples in 1961 under the administrative control of the Hindu Religious and Charitable Endowments (A) Dept. The distribution of temples according to the presiding deity is given below:

Siva and Consort	44
Vishnu	55
Muruga	20
Vinayagar	73
Goddesses	75
Others	21
Total	288

A detailed account of the city's temples will be found in Census of India, 1961 Volume IX, Part XI-D.

CHAPTER VII

INDUSTRIAL GROWTH OF MADRAS CITY

Slow progress in the early days of British Administration

Madras is one of the leading Cities in India to-day from the industrial point of view. Considerable time had to lapse before the East India Company took interest in the development of commercial and industrial activity. European business firms which were established in the latter half of the 18th century and Indian business firms established in the latter half of the 19th century have contributed indirectly to the industrial growth of the city. It is rather difficult to say precisely whether the development of Madras at any stage was being accelerated by the growth of industry.

Factors retarding industrialisation

There has always been a movement of population towards the city. Another fact which can govern industrial growth is the attitude of administration towards industry. British Government did not consider it to their advantage to organise and regulate industries in an underdeveloped economy. The Government followed a policy of non-interference. The activities of the British were confined to running a few commercial concerns of their own while lack of raw materials near the city, inadequate supply of power, non-availability of machinery, paucity of capital, etc. were severe handicaps for the growth of the industries. The pre-independent Government also did not take any substantial step for the industrial development of the City. Few attempts were made to tap even the meagre resources available, to assess the industrial potentialities, to increase the power supply and to provide assistance in money.

At this stage, we may analyse the reason for the low industrial development of Madras City. Following are some of the factors which had retarded the pace of industrialisation.

1. Poverty of the region.
2. Primitive indigenous industries managed by illiterate artisans.
3. Limited demand for manufactured goods due to poverty of the people.
4. Lack of adequate transport facilities.
5. Inadequate supply of cheap fuel.
6. Non-availability of technical personnel and machinery.
7. Lack of finance.
8. Convention-ridden and superstitious citizens.

The importance of Madras City from the point of view of trade and commerce had a great influence in attracting industry. Availability of skilled labour and proximity to port and railway stations are the other factors which have helped concentration of industries in Madras City.

Government of India's Industrial Policy Resolution of 1956 has governed the growth of Industry in Madras City. Ever since the roles of public and private sectors have been conceived as supplementary and complementary to each other, it was accepted that the establishment of large-scale industries is the responsibility of the Government. With its sound political administration, comparitive freedom from labour trouble and enthusiastic entrepreneurship, Madras has forged ahead during the Second Plan period towards the establishment of major industrial undertakings.

Madras, an early commercial centre

Trade and Commerce have existed in Madras ever since the first weaver or potter bartered his wares for the surplus catch of a long shore fisherman. Madras has maintained its importance throughout the last three centuries as a commercial and trading centre. This role has no doubt helped Madras in its industrial growth.

Another important factor which determines the growth of industry is finance. Various Organisations have been set up in the past few years to

meet the ever-increasing demand for finance. Institutions like International Bank for Reconstruction and Development, Industrial Credit Investment Corporation, Industrial Finance Corporation of India, the Madras Industrial Investment Corporation and Banks have financed large-scale industrial undertakings. Industrial Co-operatives which have come to exist are useful in setting up small-scale industries.

The pace of development of small-scale industry in the City is revealed by the fact that as on 31st March 1962, there were 29 industrial cooperatives in the city. The total loan granted to them by the Government upto that period was Rs. 21,39,420 and the total grant was Rs. 9,30,849. Though increase in facilities for technical education has been provided, the full demands of technical personnel cannot be met locally. Thus, the industrial development in the early stages have been gradual.

Industrial development in pre-Independence era

The study of the industrial development of Madras City upto 1947 will be of interest. As has been indicated earlier, much attention was not devoted to the development of industries by the British Government. In order to make a statistical measurement of growth in industry we have to rely on the number of industrial workers as revealed by the Census count since 1871. Classification of industrial workers has no doubt varied from census to census. According to 1881 Census, the number of industrial workers in Madras City was 48,183. In the report on the town of Madras by H. V. Lauchester, published in 1918, the total number of Industrial workers was found to be 48,088, out of which 5,869 were females. In the 1951 Census, the number of industrial workers was 84,267 out of which 2,814 were females. The 1961 Census has shown the number of workers in the manufacturing industries as 1,28,991 out of which 3,452 were females. If the number of workers in mining, quarrying livestock, forestry, fishing, hunting and plantations, orchards and allied activities, household industry, manufacturing industry and construction are taken into account then the total number of workers will be 1,71,757, out of which 9,433 will be females. Thus, it is not possible to make a precise comparison of the number of industrial workers in the city from decade to decade. We can only say that the number has considerably increased, though distributed over a wide range of industries and services. While in the 1871 Census, the occupational classification was based on a tentative scheme prepared by Dr. Ferr, 1951 Census has conformed to international standards. As a result of changes in terms and concepts, a comparison of the occupational pattern in all its details is not possible. The percentage of industrial workers to the total workers has risen from 20.9 in 1871 to 23.4 in 1951. The peak of 42.3% reached in 1901 is the result of two factors: (i) A wider interpretation of the terms, and (ii) the fairly prosperous situation of the handicrafts before its decline and decay in the subsequent decades. However, the ultimate position seen in 1951 compared with 1871 indicates that the character and composition of employment has improved as would be natural in a growing city with increasing opportunities for the employment of semi-skilled labour.

TABLE 7 - 1

Percentage of workers under the category "Industry" in the various Censuses

Census Years	Percentage of Industrial workers
1871	20.9
1881	11.9
1891	32.6
1901	42.3
1911	27.2
1921	25.8
1931	23.5
1951	23.4

We may now examine how the industrial policy of the Government up to 1947 has facilitated the development of industry. Weaving, pottery, painting and calico-printing thrived in Madras State during the beginning of the 17th century. Francis Day, during his visit to Madras in 1639 was much interested in the paintings and the long cloth manufactured locally. Coloured designs were imprinted on chintz by wooden blocks, and blue cotton cloth was made. The Madras dyes were famous because they scarcely faded. No systematic attempt to formulate a positive and well-co-ordinated industrial policy for India was made until 1916 when the Indian Industrial

Commission was appointed to conduct a thorough survey of Indian resources and industrial potentialities.

The industrial policy of the British Administration upto the world war is revealed in the report of the Indian Industrial Commission (1916-18), and it reads as follows:-

"The Commercial instincts of the East India Company had, from its earliest days in this country, led it to make various attempts to improve those Indian industries from which its export trade was largely drawn, as, for example, by organizing and financing the manufacture of cotton and silk piece-goods and silk yarn, although this policy met with opposition from vested interests in England, which were at one time sufficiently powerful to insist that it should be suspended and that the company should instead concentrate on the export from India of the raw material necessary for manufactures in England. The effects of this traditional policy continued for some time after the company had ceased to be a trading body, and even after it had been replaced by the direct rule of the Crown, and doubtless moulded such subsequent efforts as were made in the same direction by Government. But as laissez-faire views gradually gained increasing acceptance both in England and in India, these spasmodic efforts became less frequent and the first attempt at a general policy of industrial development took only two forms — a very imperfect provision of technical and industrial education, and the collection and dissemination of commercial and industrial information".

Laissez-faire

The policy of non-intervention meant no encouragement to Indian indigenous industries. More consideration was given to safeguard British interests. The need for industrial expansion, research and training was realised by the British administration only towards the beginning of the Second World War. The Board of Scientific and Industrial Research was established at 1940 and a Department of Planning and Reconstruction was created just before Independence. Indigenous industries did flourish upto the middle of the 19th century. When the East India Company ceased its trading functions, they were taken over by European firms, organised on the managing agency system, for whom trade proved more remunerative than manufacture. The industrial revolution which took place in the 19th century in the west affected the indigenous industries while increasing the demands for raw materials. The business houses in Madras thereby became a media for the export of raw materials and import of manufactured goods. The 1911 Census Report attributed the industrial backwardness of Madras City to the absence of a convenient source of fuel supply. The nearest coalfield is at Singareni but the bulk of output goes west, and the coal supply of Madras is mainly obtained from Bengal, either by rail or sea. As a result of the definite policy of the British administration, indigenous industries declined in importance and India relied more on foreign manufactures.

Growth of factories

The first factory on record was established in 1805, a tannery in Santhome by Mr. Thomas Parry. This gradually grew into a concern employing 300 men and shipped its products all over the world including England, America, Australia and South Africa. The factory supplied boots and accoutrements for the army. In 1939, 1876 institutions came under the Factories Act in the State of Madras. Of these, 120 were situated within the borders of Madras City including 2 Spinning and Weaving Mills, 2 Aluminium Works, 3 Electrical Works, 1 Pencil Factory, 2 Condiment Works, 8 Foundries, 6 General Engineering Works, 1 Rice Mill, 1 Tobacco Factory, 5 Oil Mills, 1 Glass Works, 1 Brick and Tile Works, 1 Enamel Works, 2 Match Works, 3 Cabinet Makers, 5 Jewellery Works and 37 Printing Presses. Handloom Weaving Industry also flourished. Indigenous small industries thrived on their own during the 19th century and early parts of the 20th century. In his Report of Madras Town published by H. V. Lauchester in 1918, he had stated that Madras possesses numerous industries mainly carried on small scale, either at or close to the homes of those engaged in them. Besides, there were a few large factories, important among them being the Buckingham and Carnatic Mills, the Perambur Railway Works, Brickfields, etc. The Buckingham Mill was established in 1878 with 50,000 spindles. In 1893, 600 looms were installed. In 1895, a small plant

for dyeing and finishing was also established. The Carnatic Mill was established in 1883 with 16,500 spindles and 129 looms. In 1885, a dyeing plant was added to this mill and both mills were amalgamated in 1923. They have now a capacity of 1,20,288 spindles and 2,788 looms producing roughly 17,00,000 lbs. of yarn and 6,26,00,000 yards of cloth. According to the Imperial Gazetteer of Madras, 1908, the chief indigenous arts of Madras were silk and cotton weaving, silver work and embroidery. "Cloths of different varieties were manufactured and exported to Ceylon, Burma and other countries. Madras had hardly any notable manufactures. Until very recently tanning was an important industry. The factories are just outside the city in Chingleput District, which in 1900 possessed 97 of them with an out-turn valued at Rs. 32 lakhs. The industry is now seriously threatened by the superior speed and cheapness of the American process of chrome tanning, but an attempt is being made to introduce similar methods in Madras. The Buckingham, the Carnatic, the two other mills, all established between 1874 and 1883 spin yarn and weave cotton cloths of various descriptions. Their total capital is Rs. 27 lakhs; they possess 1,700 looms and 117,000 spindles, and they employ a daily average of more than 7,000 workers. Cement and tile works employ 350 hands, and produce an annual out-turn valued at over Rs. 1.5 lakhs.

There are nine iron foundries and four cigar factories, one of which makes twelve millon cheroots annually. A new industry is the manufacture of aluminium utensils." As a reaction to Swadeshi movement, a provincial department of industries was created in 1906 and in 1908, the question of giving State aid to industries was examined. But, the new department could not achieve much. Its pioneering work in use of oil-engines, in the adoption of chrome-tanning and the acceptance of improvements to handlooms should however be appreciated. In a report, Alfred Chattertion has remarked as follows:- "Though the third city in India in respect of population, Madras was of small importance from the industrial point of view. Indigenous industries flourished in the middle of the 19th century itself and there were a number of important Government factories. The efforts of the East India Company to establish industries on a large scale in the country met with little success and trade proved to be more remunerative than manufacture because : (i) of lack of raw material as a basis for manufacturing operations; (ii) of the primitive type of indigenous industries which were in the hands of uneducated artisans; (iii) of the inclination of the European community to finance agriculture and develop trade rather than risk their capital in the industrial work due to lack of practical knowledge; and (iv) of the limited market for specialised manufactures.

Industrial pattern in the 20th century

In the beginning of the century, considerable changes in the industrial pattern of Madras city took place. The number of rice-pounders and basket-makers declined because of the establishment of several rice mills. Cotton ginning works also declined. Only one cotton mill was established during the decade 1900-1910. No change was recorded in the number of handloom weavers and they had to compete against powerloom factories. Carpenters, jewellers and metal workers also increased in number. A large number of miscellaneous industries developed in the suburbs. But, the old industries became dormant and it was said that the decay of old industries was more complete in Madras than elsewhere and the industrial future of Madras depended entirely on the advantages offered by the city as a distributing centre for the manufacture conducted on a large scale and on modern lines. According to 1911 Census report, the list of organized industries in the city were 101 which were employing more than 20 hands. There were four cotton mills, two cement works, a few iron works and an aluminium works and these were of commercial importance. The consumption of mineral oils had increased in Madras City indicating increased industrial activity. Madras was a very important centre of the leather trade and in the neighbourhood of the city, a large number of tanneries were engaged in the preparation of hides and skins for export to Europe and America. The list of organised industries in Madras City using power and employing more than 20 hands in 1911 is given below :-



The Tank Factory, Avadi



The Madras Rubber Factory, Tiruvottiyur

a)	Cotton Mills	....	4
b)	Iron Works	....	9
c)	Engineering shops (PWD, Harbour, Municipal, S. I. Railway, Tramway Co., and Arsenel)	....	6
d)	Electric generating stations :		
	Public	....	1
	Private	....	7
e)	Garages	...	3
f)	Printing Presses	...	23
g)	Tin plate works	...	2
h)	Aluminium works	...	1
i)	Glass works	...	1
j)	Saw mill	...	1
k)	Baling Presses	...	4
l)	Carpenters' shops	...	7
m)	Leather-tannery	...	1
	Warehouses	...	3
n)	Technical & Industrial Education Workshops	...	3
o)	Chemical works	...	1
p)	Rice mills	...	2
q)	Soda water factories	...	6
r)	Ice factories	...	2
s)	Tobacco & cigar factory	...	1
t)	Oil mills	...	2
u)	Bulk oil installations	...	4
v)	Cement works	...	2
w)	Coach builders	...	5
			101

The Industrial Commission report (1918) contained constructive proposals for the development of industries. It indicated two principles :-

i) that in future, Government must play an active part in the industrial development of the country, with the aim of making, India more self-contained in respect of men and material; and ii) that it is impossible for Government to undertake that part, unless provided with adequate administrative equipment and. forearmed with reliable scientific and technical advice.

The Montague-Chemsford Report on the Constitutional Reforms (1917) also recognised that the Government must admit and shoulder its responsibility for furthering the industrial development of the country. The Tariff Board was appointed subsequently and on the recommendations of the Fiscal Commission, contributed its share to the progress of industrialisation. The industries which were benefited by this were cotton textiles, iron and steel and match. Under the tariff scheme of 1921, the responsibility for industrial development was handed over to the provincial ministers responsible to the General Assemblies. The main suggestion of the Commission related to the revision of railway rates which was not implemented by the Government of India. Further, recommendations made by the Tariff Board were not implemented in full. Even the protective measures adopted by the Government, it was felt, were intended more to secure a larger revenue under customs rather than to stimulate local industries. During the first World War, 1914-1918, the Central European markets were closed for the raw material exports, the bulk of which went out of Madras. The trade depression followed. But there was increased demand from the United Kingdom and its allies. As such, exports began to increase and there was considerable industrial activity in manufactures, especially of military requirements. But the manufacture of finished leather was encouraged by the war needs of the allies and the weaving mills in Madras did splendid work in supplying clothing for the troops. The engineering workshops and small foundries in Madras were all pressed into service for the supply of ordnance stores, which included a wide range of metal fittings and wooden articles. Timber and hay from Madras forests were also in large demand for military purposes. Though there was a fall in demand of coir, the Indian Munitions Board was able to assist the industry by placing large orders for yarn, cordage and mattings. During the First World War, a marked increase in the amount of Indian capital was observed. The bulk of the capital invested in Indian industries was from outside India.

The control and management of important industries were in the hands of non-Indian firms which prevented Indian participation in the technical production as well as managerial sides of the industrial enterprises. The cotton textile industry was the biggest national industry of India for a long time. This industry passed through a general depression during the twenties of this century. A good number of mills worked

on losses, and capital, in general, dwindled. The leather industry and also a few co-operative agencies connected with sugarcane crushing, manufacture of jaggery, oil-crushing, rice-hulling, groundnut decortication, cotton-ginning and grinding of bones were considered by the Provincial Committee and it was found that some of the industries were handicapped for want of adequate finance. Tanning was a very important industry in Madras. It was carried on with owned capital and with funds borrowed from exporters and mundi merchants. Exporting firms gave standing advances and these advances made the tanners dependent upon the export firms, thus forcing them to sell their goods through these particular firms. The number of industrial workers had increased substantially and according to the 1921 Census report, there were 54,171 industrial workers in the city, forming 10.28% of the total population. Of these 5,961 were women. An important step was taken in encouraging new and nascent industries through the enactment of the State Aid to industries Act in 1922 by the Government of Madras.

During the period between 26th March 1924 and September 1949, i. e., approximately 25 years, 87 applications were approved and an amount of Rs. 63.47 lakhs was sanctioned. This amount no doubt, would not be sufficient to stimulate industrialisation. The Government enlarged the scope of the State Aid to industries Act in 1937 so as to permit the giving of (a) subsidies for any purpose in the case of cottage industries; and (b) such assistance to village industries as may from time to time be found necessary. The Government incurred losses to the extent of about Rs. 2.54 lakhs in granting loans as a few concerns failed. The loss amounting to Rs. 2.49 lakhs was incurred in the case of Carnatic paper mills to which a loan of Rs. 6.49 lakhs was given in 1925. The loss was attributed to the privileged position of the foreign firms, a somewhat hostile attitude of the European trade and institutions, the Indian State policy dominated by ideas of a free trade, etc.

There is an appreciable increase in trade after Independence. Some of them can be attributed to the increase consisting of import of manufactured goods and export of raw materials. The trade during the beginning of the century consisted of import of manufactured goods and export of raw materials. Gradually, the position changed and exports of manufactures and imports of raw materials also began.

The increase in population and low production rate compelled the State to think in terms of industrialisation. The improvements that were effected in the field of transport and communications also paved the way. The various factory and the labour laws that were issued since the end of the 19th century provided the conditions for the employment of labour in factories. Gradually, amenities were provided for factory workers which encouraged the people to take up employment. The Handloom Weaving Industry did not lose its importance. By 1940, more than 5000 looms were working in the city. No difference can be observed between the old and present day looms in Madras, and even the methods employed in dyeing and printing are much the same as they have been from time immemorial. The textile industry was the most predominant industry. From the following Table, an idea on the importance of textile industry in the city can be gathered :

TABLE 7-2

Textile Industry in the City

Census	Total employed in textile industry	Males	Females
1881	14,867	11,424	3,443
1901	14,380	12,735	1,645
1931	8,235	7,231	1,004
1951	23,817	22,708	1,109

It has developed to such a great extent, the textile manufactures and fibres made in the city are exported to various countries in the world. The industrial progress of Madras city was seriously handicapped in the past by the lack of coal within economic distance of the raw material in the Province, a fact which has not hitherto enabled her to keep pace with north India. But the recent extensive hydro-electric schemes in the Province have made power available cheaply, as a result of which new industries are springing up with great rapidity and also changing the structure of the industry. In 1939, a good number of engineering industries were engaged in repairing and servicing activities. This accounted

for 79 per cent of employment. Since this time, the manufacturing branch of the industry has steadily increased in importance.

By 1955, railway workshops and utilities accounted for 40% of employment in engineering. The large-scale manufacturing sector developed exclusively in the vicinity of Madras city. Of the 47 engineering units in the factory list for 1939, 29 were located in Madras city. The Second World War gave a fillip to the industrial growth of India, and Madras had its due share. There were only 135 factories in Madras city in 1935. The following figures will prove the increase in the number of factories during 1939-1943 :-

Year	No. of factories in Madras city	Average daily No. of workers employed
1939	141	20,946
1940	145	22,870
1941	153	28,377
1942	164	28,100
1943	170	31,607
1944	215	35,380
1945	245	37,174
1946	273	34,492
1947	340	42,881
1948	350	47,657

The increase in the number of factories during 1939-43 was more than 14% and the number of workers increased at over 50%. But a good portion of the area now forming part of Madras city was in Chingleput district and if we total the figures for Chingleput district and Madras, then the statement will read as follows :-

Year	No. of factories	Average daily No. of workers employed
1939	156	28,981
1940	162	31,469
1941	173	38,839
1942	197	38,973
1943	219	43,613
1944	286	47,885
1945	321	48,746
1946	371	39,862
1947	434	47,840
1948	460	55,111

The percentage of increase during the first 5 years, 1939 to 1943 in the number of factories and the number of workers works out approximately to 40% and 51%. The Second World War brought to the surface the glaring deficiencies in the Indian Economy. The scarcity of the consumer goods was felt consequent on the sudden fall in imports. The need for industrialisation at a rapid pace was realised. Great demand was felt for local manufactures and this saved many Indian cotton mills from utter collapse. However, shortage of yarn for handloom weaving was scarcely felt. Even under the stress of war, some industrial and technological progress was achieved. Yet, the capital available in the State was limited.

The Second World War gave a great impetus to industrial development. Several industries had to work to full capacity and in more shifts than one.

New plants were added in Madras City and suburbs and the establishment of new industries was all the more difficult due to the lack of indigenous fuels like coal, wood and natural synthetic oils. Its requirements of coal, an important fuel, had to be hauled over long distances that is, from West Bengal and Bihar entailing heavy freight charges. The deficiency of industrial fuels and metallic minerals retarded industrial development. Supply of water, power and capital were inadequate.

The Parry & Co., founded by Edward Parry in 1788 specialised in the manufacture of sugar, heavy chemicals, fertilisers, timber etc. It can be regarded as the pioneer of industrial enterprise in this part of the country. This was converted into a Private Limited Company in 1928. Binny and Company was also established from the early period of 18th century and they were the pioneers of textile trade and became the managing agents of Buckingham and Carnatic Mills. The Buckingham Mill was established in 1877 and the Carnatic Mill in 1882 and they were amalgamated in 1920. Binny and Company were also one of the earliest coffee growers (1850).

A good number of firms mostly European came to be established in Madras during the latter half of the 19th century. Important among them were, Messrs. Spencer and Company, Addison and Company, Simpson and Company, Best and Company, and the Burmah Shell oil storage and Distributing Company of India Limited.

The Indian firms had no proper encouragement to compete with European firms. The control of the industries, port, railways and shipping

companies, were exclusively controlled by Europeans. The first industrial unit was leather tanning industry.

For a long time, the Nattukottai Chettiars were the indigenous bankers of South India. The earliest joint stock bank to be established was the Bank of Madras in 1843 with a share capital of Rs. 30 lakhs. In 1921, it was merged with the Imperial Bank of India. Of the Exchange Banks, the earliest to be established was the Chartered Bank of India, Australia and China in 1853. A branch of the Mercantile Bank of India was opened some time in 1854. The branch of the National Bank of India was opened in 1877. In 1921, the P and O Banking Corporation established a branch in Madras. Of the joint stock banks, the premier banking institution, the Indian Bank Limited, was founded in 1907. The other banks established were, the Bank of Hindustan in 1929, The Indo-Commercial Bank in 1932, and the Indian Overseas Bank in 1937. Among other banks that were carrying on business in Madras are the Nedungadi Bank, the Palai Central Bank and the Nadar Bank.

The Madras Central Urban Bank was established in 1906. The Reserve Bank was established in 1935. All these various banks have been helpful to the extent of their capacity for the industrial growth of Madras. These banks, however, could not fully satisfy the needs of the industries. Further, what the industrialist wanted was the medium and long term financing.

Minor industries which were established prior to 1947 are: The Western India Match Company Limited (1929), The Diocesan Press (Printers, book binders, block-makers, printers of stationery and cheque books, type casters and lithographers) (1761), Messrs. Hoe and Company who do printing, binding, engaving, dye stamping and lithography (1886), The Amrutanjan Limited (1839), The Madras Pencil Factory (about 1918), The Indian Medical Practitioners' Co-operative Pharmacy and Stores (1944), The Indian Oxygen Limited (1945–46), Messrs P. Orr & Sons Private Limited (1849), The Stoneware Pipes (Madras) Limited (1938), The Little Oriental Balm and Pharmaceuticals Limited (1920), The Indian Metallurgical Corporation Branch (1947), Shree Ganeshar Aluminium Works (1929), The City Motor Service (Private) Limited (1935), The Associated Printers Madras Private Limited and Messrs. Thompson and Company Limited (1844–1890), Messrs. Unicorn Private Limited (1946), Messrs. Speed-a-way limited (1939), Madras Enamel Works (1937), Raman's Engineering Works (1946), Producers of manure mixers, Messrs. V. Venugopal Pillai and Company (1946), the Manufacturers of Power and distribution transformers, Messrs. Radio and Electricals Limited (1945). The above list, however, is not exhaustive. Printing and Publication of journals were begun since the 19th century. English and language newspapers and periodicals were published in the City.

By 1940, 120 institutions in Madras City came under the Factories Act of 1934. There were several industries engaged in various articles of utility. The manufacture was related more to consumer goods than of capital goods. Besides this, the handicrafts and cottage industries also thrived. By 1947 there were 192 small industrial units in the city and suburbs.

Film Industry also made an early beginning in Madras City. During the decade 1941-51 the motion picture industry recorded rapid growth. The Gemini Studios (1941) and the Neptune Studio (1946) were established. By 1951 Madras had 10 studios. There has been a vigorous growth of the film industry in recent times.

It can be seen that the industries at the beginning of the 20th century were of primitive type and did not use power or machinery in most cases. Machinery came to be imported after the First World War. Power Development of Madras State prior to 1929 was very insignificant. It was then confined to a few hydro-electric plants in the tea estates and the thermal station was operated by a licencee in Madras City. The Electricity Department was established in 1927 and the execution of the Pykara Hydro Electric Scheme was done later. The progress in generation of power was very poor until 1951. There were only three hydro-electric power stations (viz., Mettur, Pykara and Papanasam Hydro Electric Stations) and two thermal stations (viz. Madras and Samayanallur), in the State.

Industrial growth of Madras after Independence

After Independence, it become the policy of the

Government to industrialise the country. The Government of India announced its comprehensive industrial policy on April 6, 1948. It demarcated definite spheres for Government undertakings and private owned industries and also indicated the broad lines of the State regulation and control of the industries. The objective was to establish a social order where justice and equality of opportunity would be secured to all people, to promote a rise in the standard of living and offer employment opportunities to all. Another main objective was to make continuous increase in production along with its equitable distribution. The Government's policy of 1948 was one of "mixed economy".

Achievements during Plan periods: It would not be necessary to discuss the place given by the Government of India to establish industries in first and second Five Year Plans. The discussion will be limited therefore to whatever was done in Madras State and how it affected the industrial growth of Madras City.

The Plan of the composite Madras State was fixed at Rs. 141/- crores. But more emphasis was laid on food production than on industry. The second development during the first plan was the expansion of the power grid. Moyar hydro electric scheme, Papanasam second stage, Pykara third stage and the Madras thermal plant extension first and second stages were completed during the plan adding an installed capacity of 110, 700 K.W. to the grid. The foundation for the Neyveli development project was also laid. Another important industrial set up was the Integral Coach Factory at Perambur.

The expenditure earmarked for industries could not be spent. The first plan however did not make substantial contribution to the development of industries in Madras State. The Second Five Year Plan provided for more industries. Till the beginning of 1955, activities of Industries Department were confined mostly to the maintenance of commercial and other institutions already started, sinking of bore and tube wells for agricultural, industrial and drinking water supply purposes, grant of loans under State Aid to Industries Act, Technical education, fisheries, controlled commodities and sericulture. The department subsequently started concentrating its attention on the development of industries, heavy, small scale and village, handicrafts, sericulture, craftsmen training and industrial co-operatives. The provision for the industry under the First Five Year Plan was only Rs. 172 lakhs for cottage industry and other industries and even this target was not reached.

The Second Five Year Plan was bent upon developing heavy industries. The revised industrial policy resolution of 1956 laid emphasis on the expansion of public sector and the building up of a large and expanding co-operative sector for the development of heavy industries and machine tool enterprise.

The National Council of Applied Economic Research conducted a techno-economic survey of Madras in order to assess the industrial potentialities of the State. During the latter half of 1957, a State Geological Department was set up to make a rapid mineral resources survey for industrial development. The State Industrial Development Committee was constituted in 1957 to advise the Government regarding the setting up of new industries. Besides assessing the scope for industrial growth, the Government have provided financial assistance, land, power supply etc. They have also invested capital in a number of concerns. During the quinquennium ending with 1961 the progress of Madras in the development of major industries has been sizeable. The number of licences granted under the Industries (Development and Regulation) Act, 1951 during this period may perhaps be taken as the index of the pace set in Industrial development. Four hundred and twenty-five licences were granted. Upto March 1952, 249 applications were received under the Madras State Aid to Industries Act, 1922. The total amount applied for was Rs. 2,90,10,362 and the amount sanctioned was Rs. 77,99,500/-.

During the period 1952–1956 the number of applications received was 114 and the number of applications sanctioned was 30. The loan amount was sanctioned during the Second Five Year Plan period in 15,759 cases. The Government invested during the period Rs. 28 crores in small industries which at present number about 3,900 units, and provide employment for 42,000 persons.

This policy of the Government produced 'Industrial consciousness' among the people. The increase in the number of factories during

TABLE 7-3

INDUSTRIAL POSITION OF MADRAS CITY DURING 1956–1961

Sl No.	Category of Factory	1956			1957			1958		
		No. of Factories	No. of Workers	Percentage to the total number of workers	No. of Factories	No. of Workers	Percentage to the total number of workers	No. of Factories	No. of Workers	Percentage to the total number of workers
1	2	3	4	5	6	7	8	9	10	11
1.	Transport Equipment including railway establishment	54	16,906	25.9	49	18,858	27.5	57	20,447	29.6
2.	Cotton Mills	4	15,858	24.3	4	15,968	23.3	1	14,247	20.7
3.	Printing	152	8,108	12.4	164	8,166	11.9	167	8,029	11.7
4.	Engineering	85	4 530	6.9	72	4,565	6.6	121	6,563	9.5
5.	Others	469	19,937	30.5	496	21,062	30.7	281	19,642	28.5
	Total	764	65,339	100.0	785	68,619	100.0	627	68,928	100.0

TABLE 7-3 (Contd.)

INDUSTRIAL POSITION OF MADRAS CITY DURING 1956-1961

Sl. No.	Category of Factory	1959			1960			1961		
		No. of Factories	No. of Workers	Percentage to the total number of workers	No. of Factories	No. of Workers	Percentage to the total number of workers	No. of Factories	No. of Workers	Percentage to the total number of workers
		12	13	14	15	16	17	18	19	20
1.	Transport Equipment including railway establishment.	54	16,766	26.1	62	16,255	25.2	59	23,505	35.5
2.	Cotton Mills	1	14,141	22.0	2	13,684	21.2	1	13,456	20.3
3.	Printing	168	8,164	12.7	194	8,708	13.5	195	8,838	13.3
4.	Engineering	116	4,526	7.0	128	5,883	9.1	117	5,443	8.2
5.	Others	519	20,748	32.2	489	20,030	31.0	523	14,890	22.7
	Total	858	64,345	100.0	875	64,560	100.0	895	66,132	100.0

56-61 was 17%. Table 7-3 shows the number of factories and the number of workers during 1956-61. The two important and big public sector projects in the State are the Neyveli Lignite Project and the Integral Coach Factory. The important industries in and around the city are the Ashok Leyland Limited, the Standard Motor Products of India Limited, Simpson and Co., T.I. Cycles of India Limited, Buckingham and Carnatic Mills, Enfield India (Private) Limited, Dunlop Rubber Co., (India) Limited, Parry and Co., Easan Engineering Co., (Private) Limited, English Electric Company of India (Private) Limited, Engine Valves (Private) Limited, India Pistons (Private) Limited, Hindustan Teleprinters Limited, Surgical Instruments Factory, Heavy Vehicles Factory, Metal Box Company of India Limited, Richardson and Crudas Limited, Southern Industrial Corporation (Private) Limited, Stoneware Pipes Limited, Addisons Paints and Chemicals Private Limited, Transformer and Switch gear Limited, Oldham and Son (India) Limited K. C. P. Limited, Indian Metal and Mettallurgical Corporation, Alvitone Laboratories, Century Flour Mills Limited, National Carbon Limited, Madras Rubber Factory, etc. An oil refinery in Madras, the Kalpakkam Atomic Reactor, are the other projects that are under construction.

There has been heavy concentration of industries in the Madras region during this period. According to the Directory of Small Scale Industrial Units issued by the Director of Industries and Commerce there are 1000 small industrial units in Madras City and suburban areas like Tambaram, Pallavaram, Ennore, Avadi Ambattoor, and Padi etc. The Madras Government has also provided assistance for the growth of small scale industries, chiefly in the form of loans and technical assistance. During the first plan, an expenditure of Rs. 12 lakhs was incurred under this programme. In the Second Plan the total outlay was Rs. 535 lakhs, and 47 schemes were started in addition to two Industrial Estates and 5 industrial colonies which also began working. At the end of the Second Plan, 31 departmental units functioned in Madras City which cost Rs. 358.8 lakhs. Out of these, 23 were small scale industries, 5 handicraft manufacturing centres and 3 craftsmen training schemes. Also, 3 Industrial Training institutes had been started in City, one each at North Madras, Guindy and T. Nagar at the end of the Second Plan period.

In the State, 464 small scale industries were given aid under the Madras State Aid to Industries Act. Thus, an all round improvement has been recorded which is reflected in the number of manufacturing establishments in Madras City, as on 31-12-61 Details are given in Table 7-4.

TABLE 7-4

Different kinds of factories in the city

Sl. No.	Category of Factory	No. of factories	No. of workers
1	2	3	4
1.	Food Products	196	2,794
2.	Textile and their products	50	17,256
3.	Leather and leather products	18	275
4.	Rubber products	12	653
5.	Forest Products	...	...
6.	Paper Pulp and Products	13	242
7.	Printing, publishing and allied industries	284	10,940
8.	Chemical and Allied Products	74	2,504
9.	Petroleum Refining	...	...
10.	Metal and Metal Products		
	a. Iron and Steel	189	4,940
	b. Non-ferrous metal	67	2,324
	c. Machinery excluding transportation equipment	61	4,554
	d. Transportation equipment	89	14,714
11.	Others	244	4,759
	Total	1,297	65,955

The Industrial Estate at Guindy in Madras City was established in January 1958. It has cost the Government Rs. 12.71 lakhs. Its production capacity in value was Rs. 300 lakhs. It has 128 units. Ambattur Industrial Estate which is planned at a bigger scale to cater to the needs of small, large and medium industries will become a self-contained township in itself. In the field to research and training, the Central Leather Research Institute and Indian Institute of Technology are substantial achievements. The rate at which industrial licences are utilised indicates the industrial growth. It has been high.

A variety of industries have sprung up in recent times in the city. To cite a few, we have in the city Motor Vehicle Factories, Heavy Engineering

Factories, Aluminium Plant, Fertilizer Plants, Light Engineering Units, Electrical Accessories Plants, Paper Plants, Foundries for heavy and lightcastings, Forging shops, Machinery Units, fabrication units of small plants of paper and cement and a host of small scale industries. The per capita income of the State rose by 30% in a decade. The factory for producing superphosphate has been established in northern part of the city. The E. I. D. Parry group, Ennore, the manufacturers of fertilisers produce Ammonium Phosphate, Gypsum, Carbon Pellets, etc. A big plant for the production of tractors in collaboration with Canadian interests is under way. The unit for manufacturing tyres and tubes in collaboration with Mansfield Tyre Company, U. S. A. has been recently completed and it produces tyres of various types. The Madras Rubber Factory is the largest producer of retread compound in the country. There are two medium sized units for the production of rubber goods and cycle tyres and tubes. The Metal Box Company of India Limited, manufactures in its factory at Tondiarpet, tins and metal boxes of different sizes in considerable quantity. The T. I. cycles of India Limited has a capacity to manufacture 3 lakh cycles per annum in its factory at Ambattur. The K. C. P. Limited produce various types of machinery for use by the cement, sugar and other industries. The Ashok Leyland and Standard Motors the two leading automobile manufacturers, manufacture motor cars, lorries and diesel buses. The Hindustan Teleprinters, which is a public sector undertaking, manufactures in collaboration with Italian interests, teleprinters of various types, and it is the only one of its kind in India. The Surgical Instruments Factory at Nandambakkam has been established at a cost of Rs. 2½ crores. The huge project for manufacturing tanks has been completed at Avadi. One striking feature of the development is that big industries which have come up in the last ten years have been located outside the city. Such location of units enable the development of surrounding areas like Pallavaram, Tiruvottiyur, Ponneri, Red Hills, Poonamallee, Villivakkam, St. Thomas Mount, Chromepet, Tiruvanmiyur, Tambaram, Alandur Madhavaram, Ambattur, Avadi, Meenambakkam, Ennore, Vandalur and Madurantakam.

Chief industries in and around the city:

The following statement gives an idea of the number of factories during the last decade in the city:—

Year	Factories belonging to State	Private Factories	Total
1952	52	932	983
1953	54	1,111	1,165
1954	50	1,000	1,050
1955	50	599	649
1956	61	714	775
1957	60	724	784
1958	64	748	812
1959	63	774	837
1960	63	811	874
1961	64	815	879

On 31-12-61, 1297 manufacturing establishments were in existence in the city employing 65,955 workers.

Madras city occupies the third position in the manufacture of textiles with its only Mill, viz., Buckingham and Carnatic Mills which employs about 15,000 workers and it is one of the biggest and most modern weaving mills in India. It is located at Perambur in the city at a distance of 3½ miles from the Madras Port. The mill produces roughly 625 lakh yards of cloth valued at Rs. 1,064 lakhs. The mill has its own 'Bichromate Plant' for the production of chemicals for use in the Mill's dye house. The working and fixed capitals of the mill at the time of inception was Rs. 75 lakhs and 70 lakhs respectively. The figures for 1961 have shot up to Rs. 227 lakhs and Rs. 357 lakhs. It is the largest composite mill in Asia. The raw materials used in the mill are cotton staple fibre, Polyster fibre, etc. Part of the cotton requirements of the company are imported. In 1961, 14,545 males and 27 females and 19 foreign workers were employed. The technical personnel numbered 200, while the non-technical personnel were 14,345. The mill now operates 1,19,960 spindles and 2,788 looms and dyeing and finishing machinery. The next important industry is engineering industry. In 1939, there were 29 engineering industries in Madras city, out of a total of 47 industries in the State. The engineering industries are classified aselectrical machinery, machinery (other than electrical machinery)

manufacture of other metal products, Transport equipment (Manufacturing), Transport equipment (repairing), General Jobbing and Engineering.

The General Engineering industries, foundries, machinery and metal products manufacture in the city rose from 44 in 1945 to 56 in 1949 and 142 in 1955. But the number of heavy engineering industries is considerably small in number. About 57% in the engineering industries in the State are concentrated in Madras City. All except three of the State's thirteen large-scale engineering manufacturing plants are located in or around Madras city. Among these industries the most important are two of India's automobile and truck manufacturing plants, a motor cycle industry, one of the largest bicycle plants in India, a factory for the manufacture of heavy machinery for sugar, cement and other factories, a large producer of diesel engines and a Government owned railway coach factory, the largest in Asia. The great majority of medium scale manufacturing units are also located in the vicinity of Madras.

As against sixteen licences issued during the first plan for engineering industries as many as 133 industries were licensed during the second plan period. A large number of engineering shops was set up during the Second Plan for the manufacture of diversified engineering products.

Major Government and Private undertakings

The Integral Coach Factory lies in an area of 850,000 Square feet and it was established during The First Five Year Plan period. In February 1952 it was started and in October 1955 production was inaugurated. The total instruments was Rs. 7.35 crores. The factory was built with Swiss collaboration. The following figures show the progress in production:—

The cost of shell manufactured at the Integral Coach Factory has come down from initial Rs 186,000 to Rs 81,000. The ex-works cost of similar shell imported from Switzerland was Rs. 107,000 and its landed cost Rs. 187,000. The Integral Coach Factory has on its rolls as on 31-3-61, 5446 workshop staff and another 2,323 office and other indirect workers.

The Government of India set up a factory in 1961 at Nandambakkam, near Madras for the manufacture of surgical instruments with Russian Technical Collaboration at a cost of Rs. 4.8 crores. The factory now produces about 4.3 lakh numbers of instruments annually and these surgical instruments are made out of stainless steel and carbon steel. The factory commenced production in 1965 and proposes to produce instruments worth over a crore of rupees in 1971-72. Being the largest and first of its kind in India, and employing about 1,000 persons, the factory hopes to meet the country's requirements of surgical instruments.

A project for the manufacture of teleprinters was launched in 1960 in Guindy, Madras, with the technical collaboration of the famous Olivetti Organisation of Italy at a cost of Rs. 2.65 Crores. The factory commenced production in the year 1961-62 and during the first 10 years it has assembled 26,675 teleprinters valued at Rs. 19.4 crores. The factory employs 1,300 persons.

In the private sector, two big ventures are the Ashok Leyland at Ennore and the Standard Motors at Vandalur. They are among the six automobile and truck manufacturing plants in the country.

'Standard Motors' is situated on a 12 acre plot in Vandalur, in Saidapet taluk. It was started in 1952 with a capital of one crore of rupees. The firm was initially licensed to manufacture 3,000 small cars per year. Its present capacity is 6,000 small cars and 1,500 one-ton lorries. More than 1,500 workers are employed. It has no financial assistance from the Government. It was registered as a Public Limited Company and manufacture is done under licence from the Standard Motor Company Limited, Coventry U.K. They hold 37% of the equity capital of the Company and extend the necessary technical know-how. At present the 'Standard Herald Saloon' and the 'Standard 10 Companion Estate Car' are being produced.

Ashok Leyland at Ennore is one of the five Automobile manufacturers in India, engaged in the manufacture of heavy duty Leyland vehicles and industrial engines. This firm is licensed to manufacture 5,400 Leyland 'Comet' diesel commercial vehicles and 1200 Leyland 'Tiger Titan' diesel commercial vehicles. The factory was established in 1955. The site was located where a Railway siding could be provided and a local train service for the employees could be

possible in a new area unencumbered by existing buildings. It is in collaboration with the Leyland Motors Limited of United Kingdom who contribute 60% of the capital, and their contribution has provided the foreign exchange required on capital amount. The company manufactures besides Leyland vehicles, engines, and in 1961, it manufactured 1641 Leyland Comet Vehicles, 27 Leyland Heavy Duty Vehicles and 151 industrial engines. The fixed and working capital in 1961 are Rs. 345 and Rs. 391 lakhs. The imported material for the firm is worth approximately Rs. 3.5 crores. 2500 workers are employed. Technical know how and capital came from the collaborators Messrs. Leyland Motors Limited, United Kingdom and Indian personnel were also trained abroad. A moulding unit has also been started by the Company.

Other important industries

Details of some important industrial undertakings in and around Madras city are given in Table 7-5.

TABLE 7-5

Some important industries in and around Madras City

Sl. No.	Name	Year of Establishment	Approximate No. of workers	Items of manufacture and value of output per annum
1	2	3	4	5
1.	Simpson & Co., Madras-2.	1840	2,500	Diesel engines 10,000 Nos. and also spare parts and light engineering goods.
2.	Royal Enfield Tiruvottiyur	1955-56	...	Motor cycles, three wheelers and scooters & scooter engines
3.	T. I. Cycles of India Ltd., Ambattur	1952	...	Bicycles 3 Lakhs Nos.
4.	India Pistons Ltd., Sembium	1949	1,500	Pistons, Piston rings, cylinder levers, etc. (value Rs. 1.56 crores)
5.	Engine valves Ltd. Meenambakkam	1954	...	Valves for internal combustion engines (value Rs. 20 lakhs)
6.	Hydraulics (Private) Ltd., Madras-2.	1953	...	Armstrong Telescopic shock absorbers
7.	Wheels (India) Ltd., Padi.	...	300	Commercial vehicle wheels. (Value Rs. 2 crores)
8.	Tube Products of India Ltd., Avadi	1955	700	Tubes and strips (value Rs. 90 lakhs)
9.	The English Electric Company of India (P) Limited Pallavaram	1958	600	Fuse gear, cartridge fuses protective relays and control panels (Value Rs. 77 Lakhs)
10.	Transformer and switchgear Ltd., Adyar	1956	200	Power and distribution transformers (value Rs. 25 lakhs)
11.	Rayala Corporation (P) Limited Guindy	1956	200	'Halda' standard and portable typewriters. 4,500 Nos. (value Rs. 26 lakhs)
12.	Addison & Co., Madras 2	...	1,200	Small tools ferrous castings and light engineering products. (Value Rs. 56 lakhs)
13.	Southern structurals Limited Pattabiram	1956	856	Railway rolling stock and steel structurals wagons
14.	The K. C. P. Limited Tiruvottiyur	1952	500	Industrial machinery (Sugar, cement and chemical) 3,300 tons valued at Rs. 68 lakhs.
15.	Binny's Engineering Works Limited Meenambakkam	1958	1,000	Sugar mill machinery, chemical and cement industry, machinery, steel fabrication, forgings, castings, ferrous and non-ferrous (value Rs. 167.06 lakhs)

TABLE 7-5 (Contd.)

Some important industries in and around Madras City

Sl. No.	Name	Year of Establishment	Approximate No. of workers	Items of manufacture and value of output per annum
1	2	3	4	5
16.	Saganla Engineers, Adyar	1959	...	Concrete mixtures
17.	The Wheel and Rim Company of Madras (India) Ltd., Sembium	1951	200	Bicycle rims (value Rs. 34 lakhs)
18.	Raman's Engineering Works, Madras	1946	...	Agricultural implements (value Rs. one lakh)
19.	Richardson and Cruddas Ltd., Madras	...	200	Fabricated steel 3,600 tonnes (value Rs. 50 lakhs)
20.	Unicorn (P) Limited, Madras-1.	1946	...	Automobile castings and sheet metal components (value Rs. 8 lakhs)
21.	The City Motor Service (P) Ltd., Madras-2.	...	...	Bodies for buses, station wagons, pick up vans, ambulances, mobile tank units and police vans (value Rs. 7.3 lakhs)
22.	Southern Industrial Corporation Ltd., (near Red Hills)	1951	200	Wood screws, machine screws, etc. 500 Tonnes (value Rs. 13.2 lakhs
23.	The Ennore Foundries, Ennore.	1959	250	Ferrous and Non-ferrous castings. (value Rs. 36 lakhs)
24.	Easan Engineering Co., Tiruvottiyur	...	...	Switch boards, oil brakes, line fuses etc.
25.	Hackbridge Hethettic and Easan Transformer Factory Limited Tiruvottiyur	...	250	Manufacture of electrical machinery
26.	Western India Match Factory Tiruvottiyur	1929	1,800	Matches (value Rs. 141 lakhs)
27.	E. I. D. Parry Ltd., Ennore	1963	300	Fertilisers
28.	Shaw Wallace and Co., Ltd., Avadi and Kaduvetti	...	800	Superphosphate, Sulphuric acid, glue-sprayers, animal feed.
29.	Indian Oxygen Ltd., Tondiarpet	1945-46	250	Liquid Oxygen, gaseous oxygen nitrogen, dissolved acetylene miscellaneous nitrogen mixtures (value Rs. 20 lakhs)
30.	Rallis (India) Ltd., Madras-26	1948	100	Pharmaceuticals (value - Rs. 7.1 lakhs)
31.	Mount Metter Pharmaceuticals Limited Madras-28.	1947	...	Tonics, tablets, ointments and chemicals (value Rs. 6.5 lakhs)
32.	Amrutanjan Limited. Madras-4.	...	100	Pain balm, anoleum, inhaler, dermal and ringworm ointments (value Rs. 36 lakhs)
33.	The Indian Medical Practitioners Co-op. Pharmacy & Stores Tiruvanmiyur	1944	120	Medicines of Indian origin, Siddha, Ayurveda and unani (value Rs. 7 lakhs)
34.	The Orient Pharma (P) Limited Pallavaram	1958	...	Woodward's gripe water
35.	Jammi Pharmaceuticals Saligramam Madras-26	...	...	Liver cure medicines (value Rs. 2 lakhs)
36.	Little's Oriental Balm and Pharmaceuticals, Vepery, Madras.	...	...	Pain balm germ, gripe water, inhaler eucalyptus oil, etc. (value Rs. 8.6 lakhs)

TABLE 7-5 (Contd.)

Some important industries in and around Madras City

Sl. No.	Name	Year of Establishment	Approximate No. of workers	Items of manufacture and value of output per annum
1	2	3	4	5
37.	Government Medical Stores Depot Periamet, Madras	...	500	Medicines
38.	Addison Paints & Chemicals Ltd., Sembium	1948	550	Paints, enamels, automobile finishes etc., (value Rs. 84.6 lakhs)
39.	Dralle (Private) Ltd. Arcot Road, Madras-26.	1950	120	Soaps, cosmetics and dental preparations.
40.	The Calcutta Chemical Co., Ltd., Arcot Road, Madras-26.	1959	...	Talcum, face powders, etc. (value Rs. 7 lakhs)
41.	Madras Rubber Factory, Tiruvottiyur	1960	200	Automobile tyres and Tubes (valve Rs. 16.41 crores)
42.	The Dunlop Rubber Co., (India) Ltd., Ambattur	1959	850	Tyres and tubes and tread rubber (value Rs. 6 crores)
43.	The Century Flour Mills, Perambur	1953	200	Wheat products, maida, sooji, atta and bran (185 tonnes per day)
44.	Kohinoor Confectionery (P) Limited Vadapalani	1949	...	Confectionery 1513.91 Tons (Value: Rs. 20 lakhs)
45.	Brahmappa Tavanappanavar (P) Limited Washermanpet, Madras	1957	100	Vanaspathi, refined oil and bar soaps
46.	Alvitone Laboratories St. Thomas Mount	1957	...	'Alvitone', a food beverage (Value Rs. 8 lakhs)
47.	Gardon Woodroofe and Co., Pallavaram	...	800	Leather tanning
48.	Chrome Leather Co., Limited Chromepet	...	350	do
49.	M. Nazeer Hussain and Co., Sembium	...	200	do
50.	Metal box Co., of India Limited Tondiarpet	...	600	Metal Containers
51.	Jeewanlal Limited Washermenpet Madras	1929	...	Aluminium utensils
52.	Sree Ganeshar Aluminium Works Washernanpet Madras	1929	400	Aluminium household utensils and articles for industrial uses. (Value: Rs. 27 lakhs)
53.	Mysore Premier Metal Factory Washermanpet, Madras	...	400	Aluminium and brass Vessels
54.	The Indian Metal and Metallurgical Corporation, Tondiarpet Madras	1947	150	Brass sheets and stainless steel utensils
55.	Ram Krishna Kulwanth Raj Steel Rolling Mills, Madras	1960	150	Steel materials (Value: Rs. 1 crore)
56.	Microtic castings Private Limited Nandambakkam	1959	100	Malleable iron castings 900 tons
57.	Speed-a-way Private Limited Madras-2	1939	100	Steel furniture, gaskets, pistons, rings, levers, gudgeon pins etc. (Value Rs. 15 lakhs)
58.	The Madras Enamel Works, Madras-3	1937	100	Enamel sign boards, electrical shades, hospital ware, etc.

TABLE 7-5 (Contd.)

Some important industries in and around Madras City

Sl. No.	Name	Year of Establishment	Approximate No. of workers	Items of manufacture and value of output per annum
1	2	3	4	5
59.	The Stoneware Pipes (Madras) Ltd., Tiruvellore	1939	200	Stoneware pipes and bricks (Value Rs. 8.7 lakhs)
60.	The Oriental Glass Factory, Perambur	1959	250	Chimneys, Tumblers, jars etc.
61.	Prathiba Glass Works	—	200	Glass works
62.	The Central Asphalt Plant, Madras	1947	250	Asphaltic concrete mixer 19,000 tons (value Rs. 12 lakhs)
63.	Curzon Saw Mills, Alandur	1934	50	All kinds of woodware items
64.	Spencer & Co, Madras-2	1897	400	Wooden furniture, aerated water, bread and confectionery
65.	Cork industries, Alandur	1956	100	Cork products
66.	Government Press George Town, Madras	...	2,500	Printing and binding
67.	Southern Railway Press, Royapuram	...	500	do
68.	Thompson & Co., Madras-1	1890	100	Printing and Binding
69.	Hoe and Co., Madras-1	1886	300	Printing and Binding and also engraving, dye stamping and lithography
70.	The Diocesan Press, Vepery	1761	300	Printing, book binding block-making, type casting and lithography.
71.	The Industrial Tobacco Co., of India Ltd., near Tiruvottiyur	1949	550	Printed packaging materials for the cigarette industry
72.	National Carbon Company Tiruvottiyur	1952	300	Storage batteries (Value Rs. 170 lakhs)
73.	Government Transport Workshop, Chromepet	...	600	Bus repairs, body building etc.
74.	The Elite Optical Industries, Guindy	...	200	Optical equipment
75.	P. Orr and Sons (P) Ltd., Madras-2	1849	300	Jewellery, gold and silverware, electro-plated ware, clock cases and parts, surveying instruments, etc., (Value: about Rs. 10 lakhs)
76.	The Pilot Pen Co., (India) Private Ltd., near Red Hills	1952	350	Pens, ink, etc. (Value: Rs. 15 lakhs)
77.	The Madras Pencil Factory, Tondiarpet Madras	Prior to 1918	150	Variety of pencils
78.	Carborandum Universal Limited, Tiruvottiyur	1954	700	Synthetic abrasives aluminium exide grains, calcined bauxite and abrasives

From the foregoing analysis we have a glimpse of the different varieties of large and medium industries that have sprung up in and around the city of Madras. The list is not exhaustive and is based on replies received from selected industrial undertakings. A careful study would reveal that most of these industries have come into being after the advent of Independence. The industries are varied in character, production, and size. Setting up of more large and medium industries in the suburbs of the city are being contemplated and it can be expected that the tempo of indus-

trial activity would accelerate further in the years to come.

Role of Small-Scale Industries

Small scale industries form the seed-beds of large scale industries. As ancillary industries, they form the pillars of industrial growth and contribute significantly to the national economy. Small scale industries are a little bigger concerns working usually on a small factory basis and catering to comparatively wider market. The small industries are of varied types; but, their common features are their urban or semi-urban location, and use of machines, power and modern techniques. Though there is no hard and fast definition of a small industry, yet it is taken for all practical purposes to employ less than 50 workers, if using power or less than 100 persons if not using power and having capital structure of less than Rs. 5 lakhs.

Industrial Estates

One of the important schemes of the Government to promote small industries is the establishment of Industrial Estates. Madras State has been a pioneer in this field. The main objective of such estates is to promote the planned growth of small scale industries which can have the advantage of common service and other facilities. The Madras Government have established Industrial Estates near important towns and these estates are developed and planned sites with properly designed and ready built factories of different sizes, conforming to Municipal and Factory laws and made available by the Government for subsidized rent with complete range of industrial services. The facilities afforded by the Government are integrated and thus incentive is given to small industrialists. Provision of factory space at comparatively cheap rents and easy availability of common service facilities constitute the hall-mark of Industrial Estate programme initiated in the Second Five Year Plan. These provide a powerful tool for introducing a dynamic element, into the process of economic development. It was during the second plan period that the programme of setting up a dozen industrial Estates in the State was taken on hand by the Madras Government. The encouraging response given to the scheme by the small scale industrialists induced the Government to start 12 more industrial Estates during the Third Plan period. As against the Second Plan outlay of Rs. 154.08 lakhs for Industrial Estates in the Madras State, the allocation under the Third Plan is Rs. 320 lakhs.

By far, the most important and largest among the estates in the State is the one at Guindy built in 100 acres of land where several schemes and facilities have been integrated. There are 128 units in the Estate which are operated by 93 different entrepreneurs. With an employment of about 3000 people, the industries in the estate at Guindy turn out goods worth Rs. 3 crores every year and this could be further augmented with adequate supply of raw materials. The factory sheds are of eight different sizes and kinds of industries.

The units in the Estate are provided by the Government with numerous technical services such as mechanical, metallurgical and chemical testing laboratory, a tool-room, a forging and heat treatment shop, a finishing shop, a wire drawing, enamelling and cotton cover unit, a pressure die casting unit, a foundry, a wood working and sports goods unit, a scientific glass products unit, a raw materials depot, a technical information section with a library, blue printing equipment and common lease shop. All these have cost nearly Rs. 100 lakhs. All these services provide additional direct employment to about 400 persons extending considerable benefit to the Estates' industrialists. The total outlay on the Guindy Estate since inception upto March 1962 is Rs. 112.71 lakhs and the revenue per annum by way of subsidised rent is Rs. 5.80 lakhs. Training institutes for craftsmen and others are also located near the Estate. The Government of India are running a central footwear training centre in the estate and propose to set up a technical institute for engineering industries. The total investment in the Guindy Estate has reached Rs. 1.68 crores which excludes investment in the Government units to the tune of Rs. 1 crore. During the year 59-60, the factories at the Estate produced articles to the value of Rs. 172 lakhs and during 60-61, they produced goods worth nearly Rs: 216 lakhs. Consequent on the rapid expansion of these factories, provision of additional space such as first floor, office etc., was also taken

up and completed. Additional facilities such as godowns, show room, etc. have also been provided. A total of 128 units have been completed and leased out in the Estate. An additional area of 120 acres is being acquired for future expansion of the Estate. The total extent of land now acquired is 181.47 acres.

To meet the requirements of working capital of small scale industries, both in the co-operative and private sectors, the Government have established an industrial co-operative Bank at the Industrial Estate at Guindy.

Departmental units

The following is the list of the Departmental units in the Madras City region and the cost of each of them.

Sl. No.	*Departmental Units*	*Cost of the Scheme (Rs. in lakhs)*
1	Footwear Production-cum-service centre, Perambur	6.69
2	Model Foot-wear unit, Triplicane	1.17
3	Service centre for Pressed Metal Products at Wall-tax road with furnishing section	12.94
4	Service Centre for the manufacture of electrical goods in the Industrial Estate, Guindy	17.71
5	Wood-working and treating plant with saw mills and servicing unit in Madras	7.42
6	Tool Room Shop, Guindy	25.64
7	Common finishing shop, Guindy	2.68
8	Forging and Heat Treatment Shop, Guindy	11.61
9	Scientific Glass Apparatus Factory, Guindy	10.66
10	Servicing Corporation in the Industrial Estate, Guindy	4.48
11	Pressure Die Casting unit, Guindy	9.69
12	Model Foundry, Guindy	16.92
13	Technical Information Section, Guindy	3.51
14	Common Lease Shop, Guindy	7.70
15	Industrial Estate, Guindy	70.03
16	Die and Tool Designing Section in the Industrial Estate, Guindy	7.39
17	Woodworking-cum-engineering workshop in the After Care Home, Madras	4.06
18	Sales Emporium, Madras	0.25
19	Establishment of a structural workshop, Madras	24.73
20	Establishment of a technical training Centre, Guindy	20.50
21	Establishment of a Staff School, Guindy	8.06
22	Industrial Estate for Leather Industry Perambur	11.84
23	Provision of developed plots at Guindy	40.60
24	Footwear Training-cum-Production Unit, Pallavaram	1.59
25	Establishment of an Industrial Estate at Ambattur (with factory space for fruit processing industries)	118.16
26	Provision of Developed Plots, Ambattur	29.25

The above units come under the group "small-scale industries". There are five units under "Handicrafts" and 3 under "Craftsmen Training Schemes" which are given below:-

27	Pottery Research Centre, Madras	0.22
28	Training Centre for the manufacture of Glass Toys, Madras	0.25
29	Training-cum-Production centre for manufacture of Clay Toys, Dolls, etc., at Kosapet	1.76
30	Training Centre for Doll making under Japanese Experts	1.18
31	Design Demonstration Centre, Madras	4.00
32	Industrial Training Institute, Madras (Guindy)	15.174
33	Industrial Training Institute (North) Madras	9.45
34	Industrial Training Institute, Stree Seva Mandir, Madras	0.50

As may be seen, most of these departmental units are located at Guindy, the site of the biggest Industrial estate of the State. During 1961-62 new schemes were undertaken for, i) the expansion of Forging and Heat treatment shop, Guindy, ii) expansion of common Lease Shop at Guindy,

iii) expansion of service centre for pressed metal products, at Wall Tax Road, Madras.

Functional Estate

The industrial Estate at Madhavaram-Perambur area in Madras is meant exclusively for the leather Industry and will be a small estate and it is now in its early stages. It will be on an area of 30 acres and will have 23 units in all. This project is estimated to cost Rs. 11.84 lakhs. As is known, the major portion of the leather export is from Madras port, while finished leather goods are exported from Bombay and Calcutta Ports. In view of this. the industrial estate at Madhavaram, Madras, is significant as it can augment the leather exports through Madras. The Government have proposed to establish Common Service Facilities Centre for leather goods in the industrial Estate at Madhavaram at a cost of Rs. 3.90 lakhs.

Ambattur Industrial Estate

Besides the Industrial Estates at Guindy and Madhavaram, the big Industrial Estate at Ambattur (eight miles from Madras City) in Saidapet Taluk, Chingleput District, has come up. The present position regarding the Estate is indicated below:

In the industrial areas, plots are developed to form estates for achieving integrated development of small, medium and large industries and industrialists are encouraged to set up industries on their own in these well laid out plots, suitably developed by provision of all basic amenities. At Ambattur, 550 acres were developed and allotted to industrialists. Further extent of 600 acres has been acquired to establish developed plots.

Under the Third Five Year Plan, Government have sanctioned the establishment of co-operative and private Industrial Estates at Tiruvottiyur and Vyasarpadi. The costs of these Estates have been estimated at Rs. 10 lakhs and Rs. 20 lakhs respectively. Out of this, Rs. 8 lakhs and Rs. 16 lakhs respectively have been sanctioned as loans by the Government.

These Industrial Estates in the city and neighbourhood will play a vital role in the industrial growth of the State. The Guindy and Ambattur Estates may be expected to play a still greater role in the acceleration of the pace of industrial growth in the region.

Progress of small industries before and after Independence

The number of registered small scale industries in the various categories upto 1947 and since 1948 are given in Table 7-6. The figures relate to Madras City and a few suburban industrial areas of Chingleput District.

TABLE 7-6

Registered Small Scale Industries
Madras City and Suburbs

Sl. No.	Type of Industry	No. of units established upto 1947	No. of units established since 1948	Total
1	2	3	4	5
1.	Agricultural Implements	4	7	11
2.	Automobiles	2	29	31
3.	Ball, Roller and Tapered Bearings	...	1	1
4.	Batteries-Storage and Dry Cell	...	2	2
5.	Beverages	7	18	25
6.	Bicycles and parts thereof	.	8	8
7.	Cement and gypsum	1	6	7
8.	Chemicals and fertilizers	3	19	22
9.	Cine projects and photographic goods	2	11	13
10.	Cosmetics and Toilets	8	8	16
11.	Dye-stuffs	...	3	3
12.	Electrical accessories and equipment	4	41	45
13.	Electric Fans	...	1	1
14.	Electric Lamps	..	1	1
15.	Electric Motors	..	3	3
16.	Equipment for generation, transmission and distribution of electrical energy including transformers	...	1	1
17.	Food Products	5	9	14
18.	Fountain Pen and other writing materials	...	15	15
19.	Glass and ceramics	6	25	31
20.	Gold and Silver Artistic Jewellery	1	...	1
21.	Hand Tools	...	...	.

TABLE 7-6 (Contd.)

Sl. No.	Type of Industry	No. of units established upto 1947	No. of units established since 1948	Total
1	2	3	4	5
22.	Industrial Instruments	...	2	2
23.	Iron and Steel	79	253	332
24.	Leather, Leather goods and pickers	1	14	15
25.	Machiaery used in Industry	5	34	39
26.	Machine Tools	1	11	12
27.	Matches, fireworks and Amorces	...	1	1
28.	Musical Instruments	...	1	1
29.	Non-ferrous metals and alloys	9	86	95
30.	Optical goods and lenses	2	11	13
31.	Paints and Varnishes	...	18	18
32.	Paper and Paper Products	10	19	29
33.	Pharmaceutical Drugs	6	17	23
34.	Poultry Appliances	...	3	3
35.	Power-driven pumps	...	2	2
36.	Polythene and Plastic Products	2	48	50
37.	Prime Movers	1	2	3
38.	Printing Industry	12	25	37
39.	Radio Receivers including amplifying and public address equipment	2	18	20
40.	Railway Rolling Stock	...	2	2
41.	Refrigerators and Air conditioning equipment	1	4	5
42.	Rubber Goods	...	9	9
43.	Scientific Instruments including hospital	4	44	48
44.	Ships, other vessels and Parts thereof	...	1	1
45.	Small Tools	...	1	1
46.	Soaps-Washing and Toilet	2	5	7
47.	Sugar	...	...	...
48.	Textiles	2	7	9
49.	Timber Products	..	3	3
50.	Tobacco and Tobacco Products	1	1	2
51.	Tractors, Harvestors and the like and their spares	1	2	3
52.	Typewriters, calculating machine cyclo-style machines, and other office requisites	...	1	1
53.	Vegetable oils, including solvent extracted oils	...	1	1
54.	Wall clocks, watches and their components	...	7	7
55.	Weighing Machines	...	1	1
56.	Wooden Articles and furniture	8	8	16
	Total	192	870	1,062

According to the above statement, the group having the largest number of small-scale units is "Iron and steel" (332 Units). Next comes non-ferrous metals and alloys with 95 units. This gives an indication of the number of units engaged in light engineering works. But the figures do not appear to be complete and several small units function without having to register with the Department and without coming under the Factories Act. According to the consolidated statement of the small scale industrial units registered in Madras District for the quarter ended 30-9-63, the number of units registered is 1672.

Another private source puts the number of manufacturing industries in the city and suburbs as follows.

Sl. No.	Industries	No. of units
1	2	3
1.	Chemical Industries	154
2.	Engineering Industries	1,125
3.	Food, Drink and Tobacco Industries	108
4.	Mineral Industries	16
5.	Processing Industries	364
6.	Textile Industries, etc.	189
7.	Miscellaneous Industries	58
	Total	2014

Due to the differentiation in the classification, inclusion of the same units under different categories and the inclusion of large and medium industries, the figures appear exaggerated. In this statement, the Printing Industry is the single industry (included in the 'Processing Industries') in which there are 188 units; next, there are 138 units under 'General and Jobbing Engineering' (included in the 'Engineering Industries'); thirdly, 'Handloom Industry' (Included in the 'Textile Industries') has 121 units.

Survey of the units in Madras City

An Economic Survey of the Small Scale Industries in Madras City and its suburbs was conducted by a composite team consisting of a representative each from the Regional Small Industries Service Institute (Madras), State Directorate of Industries and Commerce. (Government of Madras) in 1956-58. The report which provides information about the principal small-scale industries in the city gives among other things, information on (i) growth, position and problems of certain principal small scale industries

in the city; (ii) existing source of finance for these industries; (iii) resources available in the centre for the development of industries; and (iv) new industrial possibilities. The industries which were subjected to detailed survey were light engineering; locks and builders' hardware, leather tanning, leather goods and footwear, domestic utensils, tin containers, steel trunks, book publication, fruit preservation, furniture, plastic goods, type foundries, optical lenses, card-board boxes and soap. A few other industries of minor importance were also surveyed though not included in the report. Table 7-7 gives the number of units in each category, investment, employment and output.

TABLE 7-7

Small Scale Industries

Sl. No.	Name of Industry	No. of Units	Total investment (Rs. in lakhs)	Employment	Total output Rs. (in lakhs)
1	2	3	4	5	6
1.	Light Engineering	71	53.80	2,024	67.29
2.	Builder's Hardware and Padlocks	9	2.13	243	5.55
3.	Domestic Utensils	26	13.20	460	27.19
4.	Iron and Steel Trunks	15	2.50	327	9.00
5.	Tin Containers	13	6.79	203	8.22
6.	Book Publication	23	16.80	392	30.44
7.	Leather Tanning	26	38.90	1,188	234.00
8.	Leather Footwear and Leather Goods	16	2.34	240	9.37
9.	Surgical Instruments	6	0.96	88	1.30
10.	Agricultural Implements	12	9.07	260	15.61
11.	Furniture	17	6.03	330	19.34
12.	Soap	10	5.30	180	9.57
13.	Fruit and Vegetable Preservation	22	8.90	270	7.00
14.	Plastic Goods	8	4.10	170	8.60
15.	Cardboard Boxes	6	10.70	168	8.00
16.	Type Foundries	13	9.90	122	4.04
17.	Optical Lenses	8	4.76	95	6.75
	Total	301	196.18	6,760	471.27

The statement shows that the investment in all the 17 categories is of the order of Rs. 1.96 crores. They provide employment to nearly 7000 persons and the annual out-turn is of the order of Rs. 4.7 crores.

Compiled from the Madras Directory and who is who (11th Edition) Edited by K. G. Sharma (1961-62)

Village and Cottage Industries and Handicrafts

Madras City and the suburban areas also have a role to play in the sphere of village industries. A central workshop for manufacturing metallic parts for the Ambar charka and a 'Saranjani Karyalaya' for manufacturing the wooden parts are located in the Guindy industrial Estate. As per 1961 Census, there are 13,103 persons engaged in household industries in the city and among them 4,021 are females. There were 400 families of weavers in the city as early as 1640. The number of handlooms which was 1527 in 1921 has increased to 10,334 in 1961. There are seven weavers' co-operative societies with 2092 looms. There are a few Khadi industrial co-operatives in and around the city.

During the First Five Year Plan, the following schemes were implemented in Madras City with the financial aid given by the Handicrafts Board and the Government of India.

1. Establishment of a Handicrafts Emporium at Madras.
2. Establishment of a Dye Research Laboratory at Kalakshetra, Adayar.

Important programmes under handicrafts in and around Madras City are given below:

Sl. No.	Scheme	Amount
1	2	3
1.	Establishment of a training cum production centre at Pallavaram for training candidates in the manufacture of fancy leather goods, such as ladies hand bags, brief cases, cases for cameras, watches, musical instruments, etc.	Rs. 1.41 lakhs
2.	Shifting of the Training Centre for fancy leather goods started at Elayankudi (Ramnad District) to the Industrial Estate, Guindy on 4-12-59	Rs. 34,900
3.	Establishment of a training centre for the manufacture of fancy articles like flowers, insects, birds, animals, human figures etc., from sea shells in Madras.	Rs. 48,700
4.	Establishment of a Research Centre for glazed pottery In Madras	Rs. 1.4 lakhs
5.	Establishment of a training centre for girls in making cloth dolls in the Stree Seva Mandir, Madras	Rs. 22,550
6.	Financial Assistance to the Victoria Technical Institute, Madras	Rs. 2 lakhs (loan)
7.	Financial assistance to the Handicrafts Emporium, Madras	Rs. 1 lakh (loan) Rs. 103,000 (grant)

The three craftsmen training centres in the city are the Training Institutes at North Madras, Guindy and Stree Seva Mandir, Madras. The state-sponsored Handicrafts Emporium, Khadi Gramodhyog Bhavan and the Victoria Technical Institute Specialise in handicrafts. The third has laid greater emphasis on the development of handicrafts.

The following statement provides information on the different areas of the city in which several crafts are going on.

Sl. No.	Places in Madras City	Name of crafts
1	2	3
1.	Guindy	Paper dolls, toys, glass toys, mobile dancing figures, mythological figures, tooled and painted leather articles, wooden toys, clay toys, paper waste, starch, blue, soda and colours, glass birds.
2.	Chintadripet	Lace garlands, bronze icons, art metal objects, silver jewellery, embossed metal ware, ritual metal sculpture, architectural stone sculpture.
3.	Kosapet	Clay toys, icons in bronze (Nataraja) (brass, copper, tin, wax, etc.)
4.	Mangadu	'Madras handkerchief' featuring embroidered motifs. (Handloom)
5.	North Madras	Handloomed block printed silk and art silk textiles, silk sarees with gold lace borders, cane articles, palm leaf articles.
6.	Pallavaram	Engraved and embossed fancy leather articles, stuffed cloth toys.
7.	Santhome and Mylapore	Sea shell toys, jewellery making, print on textiles, (block), cane articles, pith articles (models of temples, toys, flowers etc.)
8.	Choolai	Clay toys, pottery, paper toys, carved shells, plaster toys, kiln-baked clay toys.
9.	Saidapet	Cane products, bamboo basket making, printed textiles, palm leaf products.
10.	Egmore	Cane articles, basket chairs, fancy teapots, glazed potteries.
11.	Triplicane	Brocades, prints on textiles (block)
12.	Park Town	Jewellery making, cane articles, fancy tea pots.

Handicrafts link us with the past heritage and are good foreign exchange earners too while the village and cottage industries besides meeting a part of consumers' needs provide employment to many and provides additional income to the poor. Besides large-scale and small scale industries, the city of Madras has its share in the development of cottage industries and handicrafts. It is nceessary to see that the handicrafts already existing in the region do not decay as a result of the impact of urbanisation.

Conclusion

Madras City and its environs have come to play a predominant part in the economy of the State. At the end of the two plans, the region has become the centre of industrial activity in the State. But it is also rather uneconomic to have such heavy concentration of industries in one area. This economic evil, namely the lop-sided urban settlement pattern of industries has to be avoided and eliminated so as to prevent acute problems of power shortage, inadequate residential areas for workers, inadequate water supply etc. It is in the context of such multitude of problems, the need to seek a more rational distribution of urban population by stimulating the growth of medium and smaller industries becomes paramount. It augurs well to see that the administration is seized of this problem and is making plans to create industrial townships and estates around Madras. The town and country planning organisation is of the opinion that the reason why industries go to the cities and larger towns is the existence of the necessary infra-structure, external economies and supporting financial and other services. The allocation of infra-structure investment in these towns and the setting up of industrial estates will increase their locational attraction for industries as this will lead to substantial economies in such overhead investment because of relatively low cost of transportation, water supply, land etc. Already, the repercussions as a result of the industrial concentration in the region are being felt and it is to be hoped that a more even dispersal of the industries will be possible in the suburban areas in future.

The Madras harbour has got to be improved still to enable it to meet all the demands made on it by the rapid industrial growth around it.

There is large scope for further acceleration of the industrial growth of the city region and this has been indicated by the National Council of Applied Economic Research in their Techno-Economic Survey report on Madras State.

The industrial growth of the city and its environs is perceptible. The growing industrial complex around Madras City along the main arteries to the north, west and south bears testimony to the dynamics of industrial development. The private and the public sector together are responsible for this rapid stride. There is large scope for further acceleration of the Industrial growth of the City region and this has also been indicated by the National Council of Applied Economic Research in their Techno-Economic Survey report on Madras State.

CHAPTER - VIII

TRANSPORT AND COMMUNICATION

Madras city and its neighbourhood have made in the recent past, rapid strides in industrialisation. Transport facilities by road, rail and sea were not originally designed for a city growing in commercial and industrial importance by leaps and bounds. With the rapid increase in population, (resident as well as floating) a systematic approach to the transport problem is called for to ensure smooth flow of passenger and goods traffic.

Roadways

When South India first came under the British rule, no roads suitable for wheel traffic existed. It was not until the year 1845 when the 'Trunk Road Department' was formed, that any systematic progress in the construction of roads was made by the British Government. In the early days of British occupation, the only roads were the mountain passes, which were originally opened for the passage of troops and artillery. Subsequent to this, rough roads were formed connecting the military arsenals and cantonments, but no roads for other than military purposes were constructed until the year 1813, when the necessity for the construction of roads for commercial purposes first engaged the attention of the Government. Even then, no systematic progress was made for many years, though in certain districts the energy of the individual officers secured results within the limits of their charges. In 1831, the Government finally abandoned the idea of any considerable improvements and developments of roads as a task of too great a magnitude. From 1837 to 1844, some important roads were opened or improved, but owing to want of systematic management of the several undertakings, much wasteful and unprofitable expenditure was incurred, which circumstance led to the idea of formation of a special department whose sole duty it was to design and construct a great system of trunk roads or main lines of communications throughout the Presidency. In the following year, therefore, the Trunk Road Department was constituted and from that time until the year 1858 it gradually proceeded to construct the Trunk Roads of the Presidency, which for the most part followed the lines connecting the military arsenals and cantonments, and therefore owed their origin to the rough roads originally traced out previously.

Prior to the constitution of the Trunk Road Department, all roads, except those at the Presidency Town and in military cantonments were first under Collectors and finally under the Department of the Board of Revenue. The Trunk Road Department was formed in order to afford relief to the over-worked Maramut Department and to ensure the systematic improvement of the main lines of roads. Contrary to expectation, the Department appears to have been a failure for many years, owing to the inadequate subordinate establishment placed at its disposal. As at first constituted in 1845, it was placed under the officer styled 'Superintendent of Roads' to whose charge was entrusted the formation, maintenance and repair of the main lines or roads classified under the term 'Trunk Roads' extending in the aggregate to a total length of 2,300 miles, all other roads being still retained by the Maramut Department of the Board of Revenue. The latter Department had also the control of all irrigation works, navigation canals and all civil buildings in the districts. The main lines of communication were at that time in a very bad state having been neglected for a number of years and were generally unbridged and unformed.

The third Department which was then in existence was the Engineering Department of the Military Board, which had the superintendence of the construction, repairs and maintenance of fortifications, public buildings both Military and Civil as also all the Government roads and bridges, at the Presidency Headquarters, and all the military buildings and forts in the districts together with all roads and bridges, etc., in Mili-

tary cantonments. The Military Board was formed in the year 1785.

The arrangement continued till 1850 when, under instructions from the Court of Directors of the East India Company to the Government of India, a Commission was appointed in 1851 to enquire into and report on the system of Public Works in the Madras Presidency. The Commission accordingly went into the question in great detail and submitted its report in 1852. To this Report could be traced the real beginnings of the Public Works Department.

With the establishment of the Public Works Department in 1858, the Trunk Road Department went out of existence. However, it was not until the creation of Local Fund Boards in Madras in the year 1871, in whom most of the roads were vested with annual allotments consisting of a portion of the land revenue and also powers to levy tolls, that any development was discernible.

Railways

Among the first eight Railway Companies formed in India more than hundred years ago was the Madras Railway Company. It was formed in London on 8th July 1845. The 'Iron Horse' made its first run in South India on 1st July 1856 when the first line between Madras (Vyasarpadi) and Arcot (the present Wallajah Road) a distance of 66 miles-was opened. Actually, the first sod for this section was turned by the then Governor of Madras on 9th June 1853 and if the Madras Engineers were content with a bare twenty miles as in Bombay, they probably could have opened the first railway line in South India in 1854. It was decided to make Royapuram the main terminus probably because it was close to the Harbour and the Customs House. By 1861, the Madras Railway had gone up to Kadalundi on the West Coast and in 1888 it was extended to Calicut. The Jolarpet-Bangalore Cantonment section was opened in 1864 and was extended upto Bangalore City in 1882.

The North-west section was built upto Renigunta in 1862 and extended in stages upto Raichur in 1871. The 1873 Railway map of India shows that the Madras Railway operated 657 miles and the South Indian Railway 168 miles thus making a total of 825 miles.

Madras had the maiden experience of the metre-Gauge system in 1876 when Madras Park was connected with Tindivanam. By 1878, the Metre Gauge line ran from Madras to Tuticorin *Via* Thanjavur and Madurai with some gaps which were covered later. In 1879, Park Station in Madras was connected with the old Madras Beach Station, a distance of nearly 2 miles; but it was not until 1900 that the old Madras Beach station was connected to the Madras Beach Junction. Since then, upto 1931 there appears to have been little improvement in the Railway Service for the City other than perhaps a slight increase in the number of trains that were run. The Madras Railway Company's contracts expired on 31st December 1907. The lines owned by this Company were purchased by the Secretary, State of India, January, 1, 1908.

The Southern Railway which emerged in 1951 as a Zonal Railway in the regrouping scheme extends over the States of Madras, Andhra Pradesh, Kerala, Mysore and part of the present Maharashtra State.

A landmark in the Railway Transportation in the city is the opening of the double-line metre gauge suburban electric train service along side the original single track steam main line between Tambaram and Madras Beach (a distance of 18 miles) in 1931. The line runs westward through the city from the First Line Beach passing through the residential area of Egmore and then turns almost south. It passes through Mambalam, Saidapet, Guindy, St. Thomas Mount, Meenambakkam before reaching Tambaram. To start with, only 100 trains (up and down) ran per day. The popularity of this fairly fast, clean and comfortable service kept on increasing so that by 1953 there were 210 (up and down) trains. The number of passengers was 25,946,801 per annum. Now the number of trains has risen to about 240 in both the directions serving 50,126,882 passengers per annum (1961-62).

For a long time, the public have been urging for the extension of the electrification upto Villupuram. Investigations disclosed that the demand was reasonable and justified financially. The work was taken up on hand and the section between Tambaram and Vandalur (a distance of 3.5 miles) was electrified and inaugurated on the 1st January, 1962. Electrification work was inaugurated on 24-5-1963 at Guduvancheri railway station.

A unique feature of this 25 K.V. A. C. traction was the locomotives of 1,400 horse power would be capable of hauling heavy goods and passenger trains at a speed of 35 miles an hour.

A proposal to electrify the 3rd steam track between Egmore and Tambaram was approved about a decade ago. This will facilitate the running of goods and such other through services as now hauled by electric locomotives between Egmore and Tambaram on the 3rd line without interfering with the suburban electric train services.

The importance of diesel and electric tractions particularly to meet the needs of the sections with high density of traffic has come to be widely recognised.

The tendency in the recent past for Madras to develop rapidly on the southern side of the city was still further accelerated by the new provision of cheap and speedy electric train transport. The present position of railways within the limits of the city is as follows.

There are 14.5 miles of broad gauge and 9.5 miles of metre gauge railways of the Southern Railway within the limits of the city. The Madras Central Station is the starting point and the terminus of the broad gauge lines for passenger and parcel traffic. The Madras Beach Station is the terminus for the metre gauge section. The combined north-west, south-west and west-coast lines from Arkonam and the north-east line from Calcutta converge at Basin Bridge before reaching the Madras Central Station. The broad-gauge lines connect Madras with such important cities like Calcutta, Delhi, Bombay, Bangalore, Hyderabad and the major towns of the west-coast viz. Mangalore and Cochin via Coimbatore. Another broad-gauge line from Basin Bridge connects the Madras Central Station with the Beach Station, the terminus of the metre-gauge section of the Southern Railway. Local suburban service operates from Madras Central Station (1) to Gummipoondi on the north-east line (2) to Tiruvallur on the Bombay, Bangalore and west-coast line and (3) to Madras Beach Station. Although the Beach Station is the terminus of the metre-gauge section of the Southern Railway, all the important passenger trains start from and arrive at the Egmore Railway Station. It is only at the Beach Station that the two gauges meet. There is a net work of railway lines connecting the Beach Station as well as the Royapuram station with the Harbour. The Port Trust has its own Railway lines of mixed gauge which are connected to the Southern Railways and are operated by the Port Trust.

Trams

Madras city was served by electric trams till 1953. The sanction to construct the first Tramway company in Madras was accorded to Messrs. Hutchimson and Co., Ltd., London in 1892. It was not, however, until three years later (1895) that the first Tramway Section was completed and opened for the use of the public. But it should be remembered that the pride of place in introducing Tram Car Service in India went to Madras City which was ahead of other places by full six years.

In 1900, the service changed hands to the 'Electric construction Co., Ltd.' England, who operated it for a period of 4 years. It was about this time that the first motor cars were seen on the roads in Madras, although the first one that did not have a successful life was put on the road in 1894 and driven some distance down Mount Road. Messrs. Simpson and Co., Ltd., played a significant part in the development of the early motor cars and buses.

In 1904, the Madras Electric Tramways (1904) Limited was formed. Extensions were made in 1905, 1911 and 1919 and ultimately the Company had 11 miles of double track and 5.25 miles of single track as detailed below:

Main Tram service routes in Madras City

1. Between Mylapore and Parry's Corner and Royapuram
2. Between Triplicane and Washermanpet (via China Bazaar)
3. Between Purasawalkam and Parry's Corner (via Elephant-Gate Junction)
4. Between Purasawalkam and Central Station
5. Between Egmore and Parry's Corner and Royapuram

The volume of passenger traffic per day was roughly put at 1.25 lakhs. The fact remained that the Tramways were quite inadequate to serve the needs of the citizens and it was asked

whether in a city where many of the streets are inconveniently and often dangerously low, tram cars could be a suitable mode of transport.

The licence issued to the Madras Electric Tramways Co., Limited was to expire by 1955, but even before the expirtion of the licence i.e. in 1953, tramways were suddenly closed due to liquidation of the Company.

Buses

A properly organised bus service came to exist in the city only after 1910. A steady increase in the number of buses was evident since 1910. But the services were privately owned, mainly by small companies or private individuals, and lack of capital (combined with keen competition) resulted in marked lack of efficient organisation. The buses left much to be desired in speed, safety and comfort. The first real attempt at organizing the bus service was undertaken by the Madras Electric Tramways (1900) Ltd., who in the year 1925-27 operated a fleet of fifty motor buses. They were the first to open up the suburban bus routes around the city. This service was abandoned in 1928, owing to the uneconomic competition offered by the unorganised bus owners and Madras reverted to its unsatisfactory bus system until about 1933.

In the next few years, the bus services were completely re-organised and the City and Suburban routes were operated by financially sound companies operating saloon buses. But the number of buses on the roads was always found to be inadequate to the transport requirements of the citizens.

Nationalisation of passenger bus service was first introduced in the city on 15th October 1947. The private operators withdrew their buses as and when Government buses were put on the road. The entire bus transport system was nationalised by the end of July 1948. The State Transport has now (May 1963) a fleet strength of about 800 buses built from a nucleus of about 150 it had at the time of complete nationalisation in 1948. The number was 695 at the end of the year 1960-61 and 770 at the end of the year 1961-62.

Old modes of conveyance

Prior to the advent of modern modes of travel, residents in the city depended for means of transport mainly upon the rickshaw, the jutka and the horsecarriage; even to-day when the city is provided with electric train and bus services and private cars being owned by an increasing number of people the rickshaw and the jutka retain an important place in the provision of public transport and, though the old hackney-carriage has fallen on evil days, it may occasionally be seen in the streets of Madras.

The rickshaw is a small two-wheeled gig, pulled by a member of the poorer class and it is normally supposed to seat only one person. In the past it was not uncommon to see a rickshaw puller struggling along with two heavy adults in his vehicle. Many families owned private rickshaws, though the number of such rickshaws seems to be declining and the majority of rickshaws in Madras city to-day are licensed for public hire. It is a cheap but slow method of transport and involves a type of human labour which is open to serious criticism.

The jutka is a light two-wheeled vehicle with a high, rectangular boarded floor and a curved hood. It is normally drawn by a pony, though in some cases bullocks are used. It provides an exceedingly uncomfortable means of transport, but is still fairly widely used in Madras where many jutkas are available for public hire. It is surprising that the jutka has so far not been displaced by the more rationally designed 'tonga' of Northern India.

The carriages most commonly used in Madras in former times were of the four-wheeled landau type drawn by one (or sometimes two) horses. They have almost been displaced by the motor car.

Having traced briefly the growth of the major transport services, we may now proceed to examine in detail the present day traffic problems of the city.

The city traffic

Madras is essentially a busy centre of comm^rce and business and the seat of the State Government. The City's business which had its origin in the area known as George Town, flourishes between the Fort on the east and the Railway terminus on the west. Offices and colleges are concentrated along the South Beach Road upto the High Court. Thus, a fair percentage

of the places of work are concentrated in a limited area viz. George Town and along the sea-coast while the residential areas are scattered all over the city. The better-paid workers could afford to live away from their workspots, in places where there is less congestion or in the suburbs. But, poorer classes prefer to live in close proximity to their workspots. Some of the latter class with great difficulty have squeezed themselves into the already overcrowded houses. A bulk of them live in miserable hut dwellings.

The advent of the automobile and electric train ushered in the era of fast movement which only encouraged the further fanning out of the residential areas while the business of the city continued to expand only in the central areas. Of late, large scale industries are cropping up in the suburbs but most of them have their offices in George Town. It is a known fact that the suburbs get their day-to-day requirements of provisions from the city.

The future rise in the standard of living and the growth of automobile industry will lead to the plying of a greater number of cars and buses on the roads. The rate of increase of traffic on city roads has been phenomenal in recent years. The variety of traffic ranges from handcarts and rickshaws to the over-loaded lorries. But the anachronistic persistence of the old street pattern which is called to bear the heavy burden of modern traffic finds itself incapable of meeting the demand. The continued existence of outmoded bullock carts and handcarts had led to a considerable volume of mixed traffic and reduced the effective road space and made traffic all the more unmanageable. The result is heavy congestion of traffic and consequently vehiles move only with difficulty.

The rapidly increasing number of automobiles in the post-war period has particularly aggravated the traffic problems. The traffic jams and snarls encountered during the peak hours in the Mount Road and China Bazaar Road pale into insignificance when compared to the congestion obtaining in the business areas of George Town particularly in the Kothawal market and Sowcarpet areas. Crowds of people jostle each other on the footpaths and an incessant stream of creaking bullock carts, bicycles and cars pass along the roads. The movement of traffic along the George Town roads is a problem because of narrow roads and too many shops.

It needs no mention that the improvements to roads have not kept pace with the increase in traffic. A substantial mileage of city roads has thus become operationally unsafe. With the rapid increase of automobiles, the problem of accommodating and expediting the movement of fast-moving vehicles along with slow-moving cycles and hand-drawn and animal-drawn vehicles has assumed importance. Often the pace of movement is dictated by the speed of the slowest vehicle. The existing narrow city roads have not met the increasing demand satisfactorily.

The existing road pattern of the city can be considered as a combination of radial and ring roads in so far as the major roads are concerned. The main arterials of the city are the 3 great trunk roads which have their origin in the city and radiate to the north, west and south and are locally known as (1) the Wall-Tax Road and the Erukancheri High Road leading to the National Highway, G.N.T. Road (2) the Poonamallee High Road joining the National Highway at mile 7/5 and (3) the Mount Road leading to the G.S.T. road.

The Mount Road, so called because it leads direct to St. Thomas Mount, some 6 miles to the south-west of the city, crosses the Island near the Fort and skirting the edge of the Government Estate, broadens out into a fine straight road, flanked by fashionable shops, luxury hotels, show-rooms and business houses, passes through some crowded bazaars and places like Teynampet, Saidapet and Guindy. The Poonamallee High Road, a more congested and less attractive thoroughfare, runs straight through the middle of the city in a westerly direction. The Erukancheri High Road enters the city from the north-west direction. The first two roads converge on to the Fort St. George. From the last one, access can be had either to the Poonamallee High Road through the Wall-Tax road or to the South Beach Road along the northern side of the George Town and the First Line Beach Road.

There are other radials though not equally important but surely bound to come into importance with the development of the city. These are the Arcot Road, the New Avadi Road, and the Tiruvottiyur High Road. The Mowbrays

Road, the Brodies Road, the Purasawalkam High Road and the Konnur High Road can also be included under this classification.

The ring roads of the city are not so apparent as the radial roads as there are a number of missing links in them. The reason for this is that no ring roads have been laid in a planned manner. But the loops around George Town and the Fort St. George and the middle ring comprising Edward Elliots Road, Nungambakkam High Road, Aynavaram-Kilpauk Road, Anderson Road, Elephant Gate Road and Ibraham Sahib street are apparent.

The older parts of the city comprising Triplicane, George Town, Chintadripet and Mylapore are all developed with a good road pattern.

The road system of the city can be conveniently divided into 4 categories viz. National Highways, major roads, minor roads and residential and and other streets.

The width of roads vary from 6 lanes in the case of National Highways and a few other important roads to one lane in the case of certain residential streets. Road widths depending on the usage to which they are put are not well defined due to the fact that the entire road system has not been planned in a co-ordinated manner. In a built-up city where the roads existed even before the turn of the century, probably designed for much lesser speed and capacity, the improvement so far has been mainly in upgrading the surface.

There are 613.99 miles of roads and streets in the city of which a 3 mile length is maintained by the Public Works Department. The rest of the length covered by the categories mentioned below is maintained by the Corporation of Madras.

Cement concrete	21.17	miles
Black topped	486.16	,,
Metalled	97.11	,,
Unmetalled	6.55	,,
Total	610.99	,,

The aim of the Corporation was to make all the roads in the city including residential streets and lanes in the interior, dust-proof and provide all the important thoroughfares with asphaltic or cement surface to enable them to withstand the high density of traffic. The Corporation has been finding it difficult to allocate adequate funds for road improvements. Heavy rains for days on end in certain years (e. g. 1960-61) cause considerable damage to roads and streets.

Ever since 1954-55, the State Government has been paying the Corporation an ex-gratia grant of Rs. 5.00 lakhs per annum in order to meet a portion of its Revenue Account expenditure viz. expenditure incurred on the maintenance of roads and for providing other essential civic amenities in the city. During the year 1960-61, the Government made a departure from this procedure. They decided to give the Corporation large scale assistance in the shape of loans and grants for redoing the road surface in main roads such as Mount Road, Poonamallee High Road and important bus routes. In July 1960, the Government were pleased to sanction a sum of Rs. 15/- lakhs as loan and Rs. 15/- lakhs as grant to the Corporation for improvements to certain long stretches of National Highways and other important roads in the city subject to the condition that the amount would be disbursed in suitable instalments depending on the progress of work as certified by the Chief Engineer (Highways and Rural Works). Further, to augment the inadequate financial resources of the Corporation, the Government during the latter half of the year 1960–61, also made available to the Corporation ways-and-means advance amounting to Rs. 15 lakhs.

Except the areas of George Town, Tondiarpet, Triplicane and parts of Mylapore, Purasawalkam and Chintadripet which form the old town, most of the remaining areas have been brought under the control of Town Planning regulations, and the street pattern for each area has been evolved taking into account the requirements of the individual areas. The roads are designed considering the importance of each and are co-ordinated with the schemes in other areas. But a comprehensive road plan for the entire city as such has not been evolved, with the result the roads are put to varied uses for which they have not been designed. The residential areas have not been properly planned on neighbourhood principles with the result a number of residential streets cater to through traffic with the inherent danger and nuisance to the residents of the areas. Shop and business premises have sprung up on

either side of most of the important roads without any control resulting in avoidable traffic congestion and hazards. Shopping precincts or centres have not been developed according to a plan. The importance of providing convenient foot paths along the roads has also been overlooked. In brief, efforts for stepping up the capacity of roads by means of widening, segregation of traffic, restriction of slow moving vehicles, systematic control by automatic signals at junctions etc. have been conspicuously absent. In already built-up areas, improvements could be effected only without basically altering or destroying the structure and character of the existing buildings. The roads will have to be improved with an eye on their functional importance.

The Government have been anxious to carry out improvements to the National Highways running through the City. The Madras City Traffic Committee at its meeting held on 2-12-59 recommended:-

1) that a comprehensive traffic plan for the Madras City be prepared and included in the Third Five Year Plan. For this purpose, the traffic planning in the City should be classified into two parts:
   (a) Works part which can be gone into by working groups, and
   (b) Regulatory part which can be gone into by the Traffic Committee; and
2) that a Madras City Traffic Development Committee be constituted immediately for preparing a plan for improvement of Mount Road.

The Government accepted the recommendations of the Committee and in their order Ms. No. 590, Home Department dated 23-2-1960 directed the constitution of the Working Group as well as the Madras City Traffic Development Committee. By a subsequent order dated 20th November, 1962, the State Government directed that the Madras City Traffic Development Committee and the Working Group already functioning be continued in the name of Madras City Road Development and Traffic Planning Committee.

A Traffic Engineering Cell headed by a Divisional Engineer was formed during 1960-61. This cell functions under the control of the Director, Highways Research Station which is fully associated with the development of National Highways radiating from the heart of the City viz., G. N. T. Road, Mount Road and Poonamallee High Road.

In pursuance of the above scheme a short stretch of Mount Road carrying very heavy traffic into the heart of the city has been chosen for improvement as a pilot study.

The following were studied:

(a) Vehicle volume and type
(b) Vehicle-turning movement
(c) Pedestrain traffic

The survey was conducted for one day on 27-7-60 from 8 a. m. to 12.00 noon and 4.00 to 8.00 p. m.

The vehicles were classified into 8 groups:

(a) Trucks and trailers
(b) Lorries
(c) Buses
(d) Station wagons and pick-up vans
(e) Cars
(f) Motor cycles, scooters and auto-rickshaws
(g) Cycles
(h) Bullock carts, jutkas, hand-drawn carts and rickshaws

The table below shows the results of the analysis of traffic volume in various roads during the traffic count period.

TABLE 8-1

Volume of traffic

Sl. No.	Name of road	Total traffic volume	Average hourly traffic	Maximum hourly traffic
1.	Mount Road (opposite to Post Office)	26,666	3,333	5,077
2.	Mount Road (Opposite to Spencer & Co.)	19,546	2,443	3,115
3.	General Patters Road	15,760	1,970	2,668
4.	Binny's Road	10,913	1,364	1,901
5.	Dams Road	10,725	1,341	1,902
6.	Patullos Road	5,899	737	954
7.	Woods Road	3,597	450	807
8.	Nellukara Veera Mudali Road	1,886	236	316
9.	Club House Road	1,536	192	294

The percentage composition of the traffic by various types of vehicles is given in the table below:

TABLE 8-2

Types of vehicles

Type of vehicle	Opposite to Mount Road Post Office Number	Per cent	Opposite to Spencer's Number	Per cent
Trucks, trailers, lorries and buses	2,256	9	1,246	6
Station wagon, pick-up van and cars	10,038	38	7,692	40
Motor Cycles and auto rickshaws	2,196	8	1,471	8
Cycles	11,565	43	8,646	44
Bullock-carts, hand-carts, jutkas and rickshaws	611	2	490	2
TOTAL	26,666	100	19,545	100

The low percentage of bullock-carts is due to prohibition of these during peak hours i. e., between 10.00 and 11.00 a.m. and between 4.30 and 6.30 p. m. The survey also revealed that the cyclists constituted nearly 43 to 44 per cent of the total traffic as against 38 to 40 per cent of cars.

The pedestrian volume (up and down) observed in various roads is given in the following statement.

TABLE 8-3

Pedestrian traffic in important roads

Sl. No.	Name of road	Total pedestrian volume	Average hourly pedestrian volume	Maximum hourly pedestrian volume
1.	General Patters Road	9872	1234	2123
2.	Dams Road	8194	1024	1773
3.	Woods Road	8129	1016	1597
4.	Club House Road	6102	763	1169
5.	Nellukara Veera Mudali Road	5674	709	1207
6.	Patullos Road	4906	613	910
7.	Binny's Road	4656	582	938

The pedestrian volume (up and down) observed in various pedestrian crossings across Mount Road is given below:

TABLE 8-4

Pedestrian Traffic in Pedestrian crossings

Sl. No.	Location of pedestrian crossing opposite to	Total pedestrian volume	Average pedestrian volume	Maximum hourly pedestrian volume
1.	Agurchand Mansion	8,973	1,122	1,898
2.	Mount Road Post Office	7,372	922	1,592
3.	Kwality (Restaurant)	6,696	837	1,270
4.	Buhari (Restaurant)	4,805	601	968
5.	M. E. S.	4,468	559	1,066
6.	Speed-A-Way	1,912	239	363
7.	Spencer	1,695	214	373
8.	L. I. C.	1,222	153	271

The maximum pedestrian volume in most of the pedestrian crossings during forenoon was between 9.00 a.m. to 10.00 a.m. and in the afternoon it was 5 p.m. to 6 p.m.

The traffic survey also revealed that

(a) the hand-drawn and animal drawn vehicles even in small numbers held up the flow of fast-moving traffic

(b) the mixing up of the cyclists and fast-moving traffic was found to be hazardous, especially at the intersections

(c) the General Patters Road was not able to accommodate during the peak period, the traffic in both the directions with the kerb-side parking

(d) the major obstruction to the traffic flow in Mount Road was found to be the right turning movements of traffic

(e) the 'U' turn movements in Mount Road between intersections, especially by taxis, interfered with the through movement of traffic in Mount Road

It has to be admitted that facilities for off-street parking are lacking in the city. Excepting at a very few places, kerb parking is in vogue. At the same time, the roads have no separate parking lanes with the result the effective width of roads for traffic is further curtailed.

A parking survey was conducted by the Traffic Engineering Cell on 11th October, 1960, in the pilot scheme area of the Mount Road in order to estimate accurately the extent of present parking at the kerb and off the street, and to indicate where and how much additional parking space might be needed.

Subsequently on different dates the survey of the traffic flow at other intersections in the Mount Road was conducted. Mount road, the important artery of the city to-day with a heavy traffic is an ancient thoroughfare, whose history goes back to pre-British days.

Present Bottlenecks

The metre-gauge railways connecting the city with the districts in the South and Trivandrum and the Broad gauge lines connecting the city with Bangalore, Bombay and Calcutta have cut up the city and created artificial barriers for road traffic with a number of level crossings. While they might have served their purpose well when the

traffic was scarce, they have become positive hindrance to the free movement of the vehicular traffic of to-day. The situation is aggravated along the metre gauge line as the sub-urban electric trains also run along this line at very frequent intervals. It is significant that traffic along the road crossings over the railway line are held up on an average for 8 to 9 hours a day, causing inconvenience and sometimes annoyance to the public.

Apart from this, there are quite a few bridges on the Buckingham Canal and on the Cooum and the Adayar rivers which are of insufficient width and create traffic delays and hazards, though of a lesser magnitude.

The city's increasing population getting dispersed on the fringes of the city, it has become necessary to provide new bridges across the waterways the Cooum, the Adayar, the Buckingham Canal and the Otteri Nullah.

The concentration of cinema houses in certain places (e.g.) in and around Mount Road Round Tana, location of cinema houses in busy shopping centres and the non-provision of parking spaces within the premises of many of the cinema houses entail traffic congestion. It is said that the solution lies in the proper planning out of all building construction.

Provision of pedestrian crossings and construction of sub-ways at some important points are some of the steps taken by the authorities to facilitate smooth flow of traffic.

Growth of Traffic

In 1951 the number of motor vehicles in Madras City was 14,019 (including 9844 cars). In 1961, it was 23,288 (cars 13,803). The present rate of increase is much more. At this rate it will not be long before Madras City faces traffic jams as in other cities of the world. The one redeeming feature is that we have breathing time to prevent Madras becoming a clogged city like the chocked-up capitals of a number of countries. Comparative figures of cars, given in a memorandum submitted by the Automobile Association of South India to the Madras Government in 1959 will be interesting.

TABLE 8–5

Population and Automobiles in important Cities

City	Population	Cars
NEW YORK	90,00,000	30,00,000
LONDON	90,00,000	15,00,000
PARIS	60,00,000	10,00,000
MELBOURN	15,00,000	3,00,000
FRANKFURT	10,00,000	2,00,000
MUNICH	10,00,000	2,00,000
GENEVA	10,00,000	2,00,000
MILAN	20,00.000	75,000
ROME	20,00,000	1,00,000
BOMBAY	35,00,000	35,000
CALCUTTA	40,00,000	35,000
MADRAS	18,00,000	11,500

The hand and cycle rickshaws are on their way out and no new licences are granted. In 1961–62, 3,700 hand-rickshaws were registered with the Traffic Police while the figure in 1962-63 was 3,681.

It is estimated there are about 20,000 handcarts in the city, which incidentally are potential traffic hazards.

Mixed Nature of Traffic

Madras City is no exception to the general pattern of other Indian cities in having a mixed nature of traffic-slow-moving vehicles interlace the fast-moving traffic in a common carriage-way. The mixed traffic is made up of three components, viz., fast, slow and medium (cycles). The fast traffic can again be classified as heavy lorries, cars, motor-cycles and scooters. The slow traffic consists mainly of animal-drawn and man-drawn vehicles like jutkas.

The areas where we come across considerable slow-moving traffic are George Town, Tondiarpet and parts of Purasawalkam. At the other parts, slow traffic is not of such a magnitude as to pose a problem. With no restriction on route and little restriction on periods of movement, the slow moving vehicles join the traffic stream in all the present inadequate and heavily congested arteries. Technical opinion has it that though the automo-

bile has gone far to provide mobility with all its modern developments, until there are adequately designed highways on the one side and segregation of slow-moving vehicles on the other, the optimum in traffic movement and its influences can never be felt or obtained.

The removal of these slow moving vehicles from the roads will be possible only when they are provided with separate adjoining carriage ways or suitable diversion routes in sufficiently good condition as to be used without inconvenience. The ideal condition of their complete removal will, therefore, take quite sometime with the limitations of the available road system. So, only a partial removal with a ban on their plying in certain hours, the peak hours to start with and on the main arterial roads, will have to be tried as the first stage of a phased programme. A beginning has already been made in this direction in Madras City on some main roads.

The traffic survey in Mount Road has revealed that the fast-moving traffic constituted 50%, cycles 45%, and slow moving vehicles other than cycles 5%. The presence of slow-moving vehicles even in small numbers (restriction being there in force from 10.00 to 11.00 a. m. and from 4.30 p. m. to 6.30 p. m.) delayed the free movement of traffic and were potential sources of accidents. Hence, it was decided to ban completely the slow-moving vehicles other than cycles from the Mound Road, to provide them with alternate routes and to provide a separate lane adjoining the kerb for the exclusive use of cyclists in the Mound Road and wherever possible in other branch roads.

DESIGN AND LAY OUT OF MOUNT ROAD

The width of Mount Road which varied from 55 to 100 feet has now been widened to provide a clear road way of 100 feet, between kerbs and side walks 8 feet wide on either side of the road with 6 lanes in addition to a cycle lane on turn-out lane. The Moffusil and City bus stops have been separated. Jay walking has been discouraged and is also made punishable. Pedestrians were separated from the space used by the vehicles by the provision of road side walks. Indiscriminate crossing of the road is restricted by erection of 3 feet high recast cement concrete panels fencing on the side walk. The direction of travel in each lane was indicated at either end by direction arrows and "pedestrian refuge islands" have also been provided. Latest techniques in signals have also been adopted. It is claimed that fatal accidents have been reduced on the stretch of Mount Road between Spencer's and Wellington inter-section covered by the automatic traffic signals. There are proposals to provide automatic traffic-light signals in other important junctions as well.

Cycle traffic

Madras City is one of the major bicycle using centres with an annual off-take of over 25,000 vehicles and quite significantly, the biggest production unit in the country is also located near Madras-at Ambattur-with an annual capacity of 3,00,000 vehicles. About 3 lakhs of bicycles are on the city roads.

People prefer electric trains and bus transport which are convenient and cheap. Persons owning bicycles get to the nearest station of the sub-urban electric train by cycle and then travel by train which carry them quicker to the work-spots. At many of the stations, facilities for parking cycles on payment of a nominal fee have been provided by the Railway authorities.

Accidents

The Traffic Department of the Police play an important role in regulating the city traffic. It is incharge of a Deputy Commissioner of Police under the control of the Commissioner of Police. Statistics regarding the accidents that took place in the year 1959 and 1960 are furnished below:—

TABLE 8-6

Places where accidents were heavy

		In 1959	In 1960
1.	Mount Road	342	555
2.	Poonamallee High Road	148	210
3.	Netaji Subhas Chandra Bose Road	117	106
4.	North Beach Road	51	69
5.	South Beach Road	68	100
6.	Wall Tax Road	70	132
7.	Broadway	71	84
8.	General Hospital Road	68	84
9.	Triplicane High Road	40	46
10.	Purasawalkam High Road	36	41
11.	Royapettah High Road	52	67
12.	Thiruvottiyur High Road	76	96
13.	Basin Bridge Road	45	44
14.	Road Junctions	521	630
15.	Cross-roads	189	177
16.	Places controlled by Police and signals	52	58
	Total	1,946	2,499

The principle of 'resipsa loquitur' (the things speaks for itself) can be applied to all accidents because no accident is ever caused without some neglect somewhere. Although the Traffic Department would adduce causes like negligence, careless driving, disregard of traffic signals, disobeying of traffic rules, etc. for these accidents, one cannot help apportioning the blame to the lack of traffic facilities mentioned below.

(a) **Defective layout of roads**

The present system of roads has not been designed for heavy and fast moving traffic but was originally planned for pedestrians and cart traffic. As already observed elsewhere, the important roads are used for different types of traffic, i. e. through, local, residential etc., at the same time.

(b) **Mixed Traffic**

Many of the accidents are due to mixed traffic of fast and slow moving vehicles with a considerable difference in speed.

(c) **Inadequate pedestrian ways**

Sufficient and convenient pedestrian ways have not been provided along most of the roads and crossing facilities are poor which also contribute to the accidents.

(d) **Bad Road Junctions**

Most of the road junctions are not laid out in a proper way and the badly designed road junctions claim the maximum number of accidents.

We may add yet another reason. Many of the drivers of automobiles are not sufficiently educated to appreciate and observe the traffic rules and signals.

TABLE 8-7

Types of vehicles in Madras City in various years

Type of vehicles	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961
1	2	3	4	5	6	7	8	9	10	11	12
Motor cars	9,844	10,520	8,770	8,926	9,717	11,463	13,524	13,215	13,832	13,666	11,797
Motor Cycles	1,581	1,658	1,538	1,604	1,978	2,515	2,187	3,460	3,495	4,362	4,119
Goods Vehicles	1,615	1,745	1,445	1,365	1,891	2,478	2,651	2,538	2,555	2,867	2,831
Autorickshaws	...	136	148	157	220	356	328	302	262	237	198
Taxis	310	320	254	256	346	459	717	886	1,120	1,215	1,252
Buses	521	530	554	584	641	779	792	699	712	750	715
Miscellaneous such as											
Trailers and Fire Service vehicles etc.	148	157	182	201	241	248	251	317	340	125	134
Automobiles total	14,019	15,066	12,891	13,093	15,034	18,298	20,450	21,417	22,316	23,222	21,046
Hand rickshaws	3,250	2,750	3,750	3,750	3,750	3,750	3,737	3,724	3,722	3,717	3,700
Cycle rickshaws	...	...	693	1,000	1,000	1,000	1,004	1,004	1,004	1,004	1,004
Jutkas	407	425	372	363	401	443	508	512	489	494	479
Bullock carts (Hackney carriages)	431	425	373	355	332	314	306	285	276	272	258
Bullock trucks	...	...	...	...	...	...	...	...	600	...	...
Hand carts & Bullock carts	8,147	8,213	8,682	8,871	9,401	9,399	9,249	9,193	9,441	10,000	12,000
	12,235	11,813	13,870	14,339	14,884	14,906	14,804	14,718	15,532	15,487	17,441
Ttotal vehicles	26,254	26,879	26,761	27,432	29,918	33,204	35,254	36,135	37,848	38,709	38,487
Total accidents reported	2,953	2,903	2,603	2,733	2,900	3,632	4,062	4,272	4,196	4,570	3,669
Fatal cases	67	60	62	54	48	54	63	57	57	59	62

Over bridges

As traffic is increasing by leaps and bounds on the electric railway and on the roads it is urgent that all the level crossings are replaced by over or under bridges. The Railway and the Corporation authorities have already embarked on a systematic programme of construction of over-bridges at all these crossings.

Waterways

The Buckingham Canal, is a navigation canal which runs through the States of Madras and Andhra Pradesh. To the citizens of Madras the Cooum and the Buckingham canal are more a nuisance than useful waterways. The bad odour emanating from them has made people to look down upon them as a curse of the metropolis. However, it is gratifying to note that the present Government are taking steps to improve the conditions of the canal through this "Cooum Improvement Scheme".

In Tamil it is known as 'Uppu Vaikal' meaning salt-water canal. It attained its present standards in 1897. It runs almost parallel to the Coromandel Coast, within the limit of 3 miles from the coast. In many reaches it runs within half a mile of the sea. It joins up a series of natural backwaters and connects all the coastal districts from Guntur to South Arcot. It is 1961 miles long north of Madras City and 62 miles long south of Madras which for the sake of convenience are called North Canal and South Canal. Its northern end is Peddaganjam in Krishna District where through the local Commamur Canal it joins with Krishna Delta high level Canals and thence with the irrigation and navigation canals of Godavari Delta system and opens up traffic with the Sea port of Kakinada in Godavari District. Its southern-most terminus is the Marakanam backwater in South Arcot District. Thus through the navigable waterway now existing between the Godavari Delta, the Krishna Delta and the Buckingham Canal System, a total mileage of 462 miles from Marakanam to Kakinada can be covered.

With the separation of Andhra State, the stretch of the North Canal lying in Madras State is about 36 miles. The length of the Canal course is about 12 miles within the city limits. The Canal plays an important role in the movement of goods in and out of the City.

North Canal

The North Canal is at present maintained to a bed width of 20' in closed reaches and 30' in open reaches. To provide berthing space for boats, a 60' width of canal is maintained at the wharves. A minimum draft of 3' is maintained in the Canal and ruling bed levels varying from 16.0' to 17.5' are fixed with reference to M.S.L. 20' to suit the various lowest recorded tide levels. At the site of the river crossings, sand bars are being formed by the tidal action of the sea and these bars have to be kept open especially during the rainy season, to prevent flooding of Madras City. When the bars are kept open, there is also the fluctuation in the depth of water available for navigation within the Canal, depending upon the level of the tide in the sea.

To mitigate the effects of the tides and minimise silting of the Canal due to floods in the river and to maintain a steady water level, locks are provided at five places.

River Courtalliyar crosses the Canal between M 10/1 to M 11/4 at Ennore backwaters.

South Canal

The navigation line of the South Buckingham Canal starts in the open reach of the river Cooum-south arm meanders in the city from M 1/1 to M 5/4, crosses the river Adyar and then runs south to the tail end.

The portion of the Canal between M 1/1 and M 5/4 is known as the 'Junction Canal'.

The entire South Canal is maintained to a bed width of 20' in close reaches and 30' in open reaches. The minimum draft maintained is 2'. There are numerous river crossings across the Canal and suitable locks are provided at seven places.

History

The Canal has a chequered history. The originator of the idea was Mr. Stephen Popham (1778-1795) Secretary to Sir John Day, Advocate-General of Bengal and subsequently an enterprising public-spirited barrister of Madras. The plan formulated by him in 1782 for the establishment of Police etc, for the better government

and regulation of Madras Town envisaged, among other things, the excavation of a navigable canal.

"Fish might be brought to Madras from Cattavorcum River (Ennore backwater) as well as from the road and if a navigable canal was made from Moodu Kistnah's Choultry to the Black Town, and to be continued on the west side till it meets the two streams which form the island on South of Fort St. George, fish and other articles might be brought from different parts of the country which are on the borders of Polycott lake at an easy expense" (Love's Vol. I page 312)

It was left to a private individual by name Basil Cochrane to implement the scheme of Mr. Popham by cutting through the stripe of sand and shallow backwaters from Madras northwards to Ennore lake, thus forming a navigable canal for small crafts. The work was completed by 1806. The Canal was 11 miles long and was officially called Lord Clive's Canal after the then Governor, though it was more popularly known as Cochrane's Canal after its founder. The Canal was soon extended to Pulicat Lake thus opening up navigation to a distance of 25 miles north of Madras.

In 1837, the Canal was taken over by the Government which paved the way for its extension on both the directions in slow degrees. By 1857 it was extended to Dugarazapatam 69 miles north of Madras by means of excavated cuts joining backwaters together. It had by then acquired the name of East Coast Canal, a title which it retained till 1878 when it was finally named after the Governor of Madras, the Duke of Buckingham and Chandos, as Buckingham Canal. By this time an entirely new canal had also been excavated on the same principle of joining backwaters together from the Adyar River to Sadras, a total length of 35 miles. There was, however, neither then nor for twenty years to come, any connecting link between the Cochrane's Canal and the Canal, South of the Adyar. By 1876 the Canal was extended from Dugarazapatam to Krishnapatnam 92 miles north of Madras thereby placing Madras in communication with the important town of Nellore, a short stretch of road between Krishnapatnam and Nellore rounding off the connection. It may be stated here that until the laying of the railway line to Nellore which took place many years later, the Canal continued to be the only principal means of communication both for passengers and goods between Madras and Nellore. The Great Famine of 1877 accelerated the extension of the Canal more as a famine relief measure. The end of 1878 saw the extension of the Canal to its existing northern limits and the excavation of a connecting link between the Cooum and the Adyar rivers known as 'Junction Canal' five miles long right through the heart of Madras. The extension work did not stop at this stage. By 1882 the Canal South of Madras was cut right through from Sadras to its existing southern limit in the Marakanam backwater. Substantial improvements were carried out to the Canal between 1892 and 1897 to boost its efficiency. The fold flood gates were converted into locks, several new locks built, new openings to the sea made, and long surplus escapes formed in the east bank of the Canal.

Traffic in the Canal

We have seen that the Buckingham Canal establishes communication from Krishna and Godavari deltas in the north and from Marakanam in the south to the City of Madras. It thus enables the produce of these two great delta systems, which, besides the main Canal, have numerous branches of navigable Canals, to be brought to Madras from as far north as Kakinada in Godavari District. It has placed Madras in cheap and easy communication with no less than five districts and with the important towns of Kakinada, Vijayawada, Musulipatnam, Ongole and Nellore besides, numerous small trade centres. It has entirely superseded the uncertain and precarious coastal traffic which formerly exist at numerous minor ports along the coast.

The traffic in the Canal is mainly of country-boats of capacity ranging from 5 to 30 tons. The weight of an empty boat is from 3 to 5 tons. These boats are built locally with the help of men trained in the profession but there is no well-equipped boat building yard. All boats sail day and night when the wind is suitable; otherwise they are towed or poled. The crew consists of 3 to 5 men. Passenger boats are now on the decline. The total number of boats that ply

exceed 1200 of which about 300 ply in the South Canal. The North Canal transacts more business than the South Canal. The low water level prevents the plying of mechanical and heavier boats.

Cargo carried southwards in the earlier days consisted principally of grains, condiments, salt, fish, fire-wood, chunām shells and charcoal, while those taken northwards were chiefly coconuts, coir, palmyrah rafters, fish, salt, jaggery and banana shoots. The bulk of the cargo of the present time consists of fire-wood, shell, salt and coconut leaves. A major portion of the cargo is conveyed to the city. The boats on most occasions practically go empty on their return trips, excepting for a limited quantity of provisions.

The City of Madras mostly depends on the supply of fire-wood brought in by the boats. Large belts of salt pans and shell deposits are situated in the vicinity of the Canal. Hence, the the cost of conveyance of these commodities by boats is cheaper than by road or rail although the time taken for transport by boats is much more. According to the owner of a boat, which plies in the South Canal, the freight rates of boats are more or less half of lorry rates and it will take about 10 to 12 days to complete a trip from Marakanam to Madras, a distance of 62 miles.

The Canal had to face a serious competition from Road and Rail transports. With the growing accent on speed business people switched over to road and rail transportation. The dryage of goods due to the delay involved in the Canal transport coupled with the fear of theft enroute might have also prompted to some extent this changeover. So much so, until the out break of the Second World War, the Canal traffic was in doldrums. The receipts dwindled while the charges of maintenance became more and more, resulting in loss to the Government. It was only when the Second World War broke out, that its traffic position took a favourable turn as the railways and motor lorries were diverted mostly to the transport of War supplies. And now after the conclusion of the War, the position has not materially changed. If the Canal could be developed and power-driven vessels are put into commission, it would definitely attract better traffic and to some extent relieve the congestion in the goods traffic of the railways.

Statistics about the number of boats that plys in the Canal and the passenger traffic are given below:—

TABLE 8–8

Canal Traffic

Year	No. of boats plying in the canal	Number of Passengers
1956–57	866	26,536
1957–58	1,093	20,307
19:8–59	1,129	19,989
1959-60	1,188	20,444
1960–61	1,237	18.737

The value of the goods conveyed through the Buckingham Canal at different periods will give an idea of its traffic.

TABLE 8–9

Value of goods transported

Year	Total Quantity of goods in tons	Value of the goods in lakhs of rupees
1882-83	337,992	100.35
1892-93	254,311	128.12
1900-01	159,218	43.81
1938-39 (just before the Second World War)	228,578	134.00
1951-52 (before the separation of Andhra State)	216,538	415.55
1956-57 (Madras State limits)	195,083	284.07
1960-61	189,977	184.21

Other benefits

The Canal passes generally through, what was before its construction, a dreary waste of sand, but much of this barren and arid country has been greatly developed and improved owing to the remarkable cheap means of communication. Cultivation has been introduced or extended owing to the facilities given by the Canal for the drainage of lowlying lands, numerous casuarina and other plantations have been raised along its entire length and along the shores of backwaters

in communication with it, and a welcome increase in the wealth and prosperity of the population has taken place.

Regulations of water into and out of the Buckingham canal with the aid of locks reduce the bad odour emanating from the Canal and the Cooum river to a certain extent. Regulating works such as locks are mainly operated to shut out river floods (but admit high tides into the Canal) and to maintain the depth of water in the Canal required for navigation.

Revenue

Revenue is realised by selling licences and by collecting other fees such as wharfage, demurrage etc.

The capacity of the boats is determined by volumetric measurements and the fees are levied based on the tonnages so arrived.

The entire operations of licensing and collection of various miscellaneous items of revenue are governed by the provisions contained in "The Canals and Public Ferries Act of 1890, Government of Madras" and the rules framed thereunder.

The cargo boats are charged Rs. 4.50 per ton per annum and the passenger boats at Rs. 6/- per ton per annum. Annual and six weeks' licences are issued for boats at the option of the boat owners.

The average revenue realised in a year from both South and North Canals is about one lakh. The total tonnage of cargo transported is 1,96,253 and the value of cargo handled is above Rs. 2.44 crores. Various proposals were considered from time to time, for improving the Canal but the schemes did not fructify.

The annual expenditure in maintaining the Canal i.e. periodical clearance of silt, cutting open of sand bars at the mouths of rivers and cost of the necessary establishment for operating the locks etc., is about Rs. 2 lakhs.

The poor return has practically prevented the execution of works such as providing quarters and Inspection Bungalows, even in out of the way places. Even many cross drainage works and provision of wharves etc., that could improve the efficiency of the system, were not taken up.

Development plans

North Buckingham Canal

Schemes for improving the North Buckingham Canal upto the limit of the Madras State were sent to Government by the Chief Engineer in November, 1957. The main work contemplated was the widening and deepening of the Canal. The existing bed width of the Canal is 20' with 3 feet depth of water at the Mean Sea level of + 20.00. This is sufficient for boats upto 40 tons capacity towed by manual labour at a speed of 2 to 3 miles per hour. It was proposed to widen the Canal upto 40 feet and deepen it upto 6 feet so that boats upto 100 tons capacity (including power boats) could ply. The width of the Canal was later decided to be kept at 33 feet in accordance with the recommendation of the Andhra Government. The total cost of the schemes was estimated to be Rs. 55 lakhs. Other provisions made in the schemes were :-

1. Construction of suitable lined outlets and inlets in banks on either side of the Canal to facilitate draining of water.
2. Construction of masonry outlets for drains which are emptying into the Canal.
3. Providing a pucca wharf at the shell wharf at mile 3/0.
4. Constructing a new wharf at Pulicat with approach roads.
5. Workshops and dry dock at Ennore for repairing boats etc.
6. Quarters for staff, i.e. Sub-Divisional Officer, Section Officers, etc. and Inspection Bungalows and installation of rain gauges
7. Improvements to Canal's telephone

Of the above, item 3, the pucca wharf at shell wharf has been taken up for execution under the Government of India grant of Rs. 10 lakhs given recently and the work is in progress.

South Buckingham canal

It was proposed to deepen the Canal to (+) 14.00 with a bed width of 33 feet in the reach between 1/2 and 7/2. The estimated cost of the proposal was about Rs. 36 lakhs.

It was also proposed to excavate a link canal connecting the Madras Harbour with the Cooum river so as to establish a continuous navigation line between the Madras Harbour and the

Buckingham Canal. The object was that exportable cargo such as iron and manganese ore and importable cargo such as timber from the Andamans could be transported economically through the Buckingham Canal. It was expected that such a proposal would also enable the drawal of tidal water of the sea during the high tide and eliminate the stench nuisance in the Cooum and the Buckingham Canal within the city limits.

However, none of the Schemes materialised. Based on the recommendations of the Gokhale Committee and the report of the Traffic Surveyor appointed by the Committee, the Government of India did not approve the schemes.

The High Power Technical Committee, Madras, appointed by the State Government in August 1958 did go into these proposals in detail so far as they relate to the city limits and recommended a number of improvement schemes.

Clearance of slums on river and canal margins

Slums have sprung up in large numbers on the canal and river banks. Highly insanitary conditions prevail on the River and Canal margins near these slums. Since the schemes of improvements to the Cooum and the Buckingham Canal cannot achieve the desired results without the removal of the insanitation caused by the slums, it is of utmost importance that all the slums that have sprung up on the banks of the river and the Canal will have to be cleared as early as possible and the slum dwellers rehabilitated elsewhere.

The Government of India have sanctioned an amount of Rs. 10 lakhs, in February, 1961 for carrying out improvements to the Buckingham Canal.

The above works have been undertaken by the State Public Works Department and so far an expenditure of Rs. 6.66 lakhs has been incurred on Civil works and action taken to acquire the dredger.

We may conclude with the suggestions offered by the National Council of Applied Economic Research in its Report on the Techno-Economic Survey of Madras, 1960, in regard to the improvements that may be made to the Buckingham Canal.

"If the Buckingham Canal could be rendered navigable for larger power driven boats, it could take some of the strain off the railways. Further, if it could be joined with the Vedaranyam Canal, it could provide a cheap means of transport from Madras to Thanjavur through Cuddalore. There is also the possibility of linking the Canal to Madras harbour to make transhipment easier. According to the findings of the Traffic Survey Report on Buckingham and Vedaranyam Canals, the large expenditure necessary for broadening and deepening the Canal would result in greater advantages if employed in developing the alternative means of transport. Joining of the two canals would be superfluous if the railway capacity over the distance were fully utilized with better organisation. A coastal road from Madras to Thanjavur and even further down to Tuticorin and Kanyakumari would perhaps have great future. The extension of the Buckingham canal to the harbour is considered too costly, because it would involve the dismantling and reconstruction of all the bridges in the city. With the same expenditure, considerable improvements could be made in the transhipping facilities at the Madras harbour with perhaps better results. These major developments aside, proper dredging of the Canal and improvement of the boats would undoubtedly assist in relieving some of the traffic congestion in Madras area and should be undertaken."

Port

That Madras City does not have a natural harbour is well known. Before the construction of the harbour, ships calling at the Madras Port had to lie about one mile off the shore and had to look to small masula boats to carry cargo to and from the shore. This system was very unsatisfactory and the cargo used to be lost or damaged in transit, because of the heavy surf-breaking on the beach; the inconvenience caused to the commercial community was considerable, not to speak of the risks that steamers ran by lying out in the open sea. The loss in this way between ship and shore was estimated at 90% of the loss on the whole voyage and at 20% of the trade profits. The goods were piled on the sand and

carried in gradually and stored in the Company's godowns after inspection by the Sea-customer. It was in 1794 that the Sea Custom Office was moved to its present site because there was more space there and goods began to be landed on the strip of beach opposite the Custom House instead of at the Fort.

The need had been long felt for some sort of protection from the rough surf which prevented ship from anchoring near the shore. In 1862, a screw-pile pier was built in order that goods might be landed safely on it from boats. In 1868, the Chamber of Commerce requested the Government to construct some sort of harbour to protect ships from weather and from the extortions of boatmen. A committee was appointed to report, which was strongly in favour of building something but it was much divided on the question whether it should be a closed harbour, or a long break-water parallel to the coast, keeping the force of the waves off the ships lying inside it. In 1877, at the suggestion of an Engineer, Mr. Parkes who had been successful at Karachi, the construction of the harbour began, formed by a pair of arms, 300 feet apart, stretching out seawards parallel to one another for a length of about 3000 feet and then curving round towards each other so as to leave an entrance of 515 feet on the eastern side. In 1881, a storm destroyed a large part of the unfinished work, wrecking much of the piers, rolling the two Titan cranes into the harbour and sinking the two small ships which lay anchored inside. In 1883 a committee of English experts reported on the best method of completing the work and in 1884 operations were recommenced. The harbour was completed in 1896 on practically the original design.

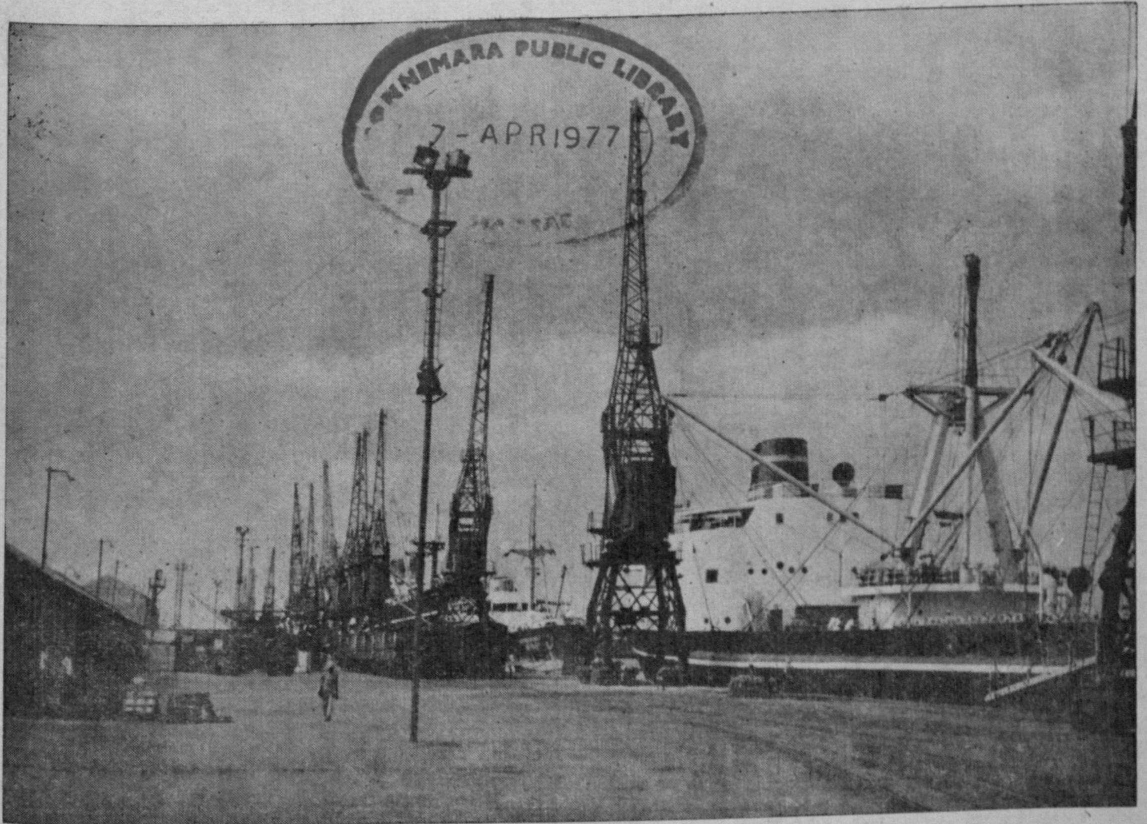
In 1904 Sir Francis Spring put himself to the task of reconstructing the harbour on its present lines. The old entrance in the east suffered from navigational difficulties due to rough sea conditions and the shallowing of the sea bed at the entrance due to sand accretion. So, a 400 feet entrance on the north-east was opened in 1909 and the old entrance closed. Really, it is a "challenge flaunted in the face of nature".

The original construction gave a precise shape and form to the Port of Madras, which it still retains substantially. Two long projecting concrete arms each about 2,500 feet long, represented by the North and South groynes were first constructed into the open sea from the shore. The third side was the eastern breakwater in which a 515 feet entrance was made. The fourth side was the shore. The enclosed harbour is about 3/5th of a square mile (excluding Boat Basin etc.) with an area of approximately 200 acres and normally steamers lie in sheltered waters. The harbour can accommodate 14 vessels drawing upto 31' 6". Even at low tide there would be a depth of 26' to 30' of water. Inside this protected area, there was a pier runnning at right angles to the beach. No quayside berths were provided. The ships lay within the shelter of this box-like enclosure which is the harbour proper and discharged their cargoes into small boats which plied between the ships and the pier.

It, however, did not remain in that stage for long, the steadily increasing traffic compelling the port authorities to undertake new works which consisted of quay berths, the provision of a new entrance in the north-eastern corner and the closure of the old entrance which is now the Easy Quay. The work was begun in 1909 and completed in 1916. The port was thus equipped with four first class berths known as the West Quay (known as West berths I to IV) and one along the south groyne (South Quay I) equipped with transit sheds and warehouses, much as they are today.

The subsequent development of the port consisted of the construction of three new quay berths known as the North Quay, South Quay II, and the Centre Berth at West Quay and the provision of more up-to-date equipment for the rapid landing of cargo. Transit sheds and warehouses have been since added to provide increased accommodation. The growth has been so steady and rapid that from small beginnings the Madras Port has now grown into a major port, the harbour consisting of a basin of 200 acres for ships of 30 feet draft, a basin of 9 acres for lighter craft, tugs, launches, etc. of 16 feet draft and a timber basin of 2 acres of 3 feet draft. There are now 8 general cargo berths, one coal berth, 3 oil berths and 6 mooring berths.

The next stage of development started during the plan period. The principal task in the First Plan was to provide additional wharves and berths



The Madras Harbour

and to survey the facilities available at minor ports and to improve selected ports, by way of supplementing the resources of the major ports. During this period work on the construction of the coal, ore and the passenger station jetties in connection with the first stage of the wet dock scheme was commenced. By the end of 1955-56, works had been completed on two sidings and 6,200 feet of mixed guage track on the site of the proposed marshalling yard. On account of difficulties in acquiring suitable land, progress on housing schemes was delayed.

The development works undertaken and completed during the Second Five Year Plan can be classified broadly under the following categories:

(1) Measures to improve the existing facilities and amenities in the Harbour.

(2) Measures for effectively combating the menace of sand accretion at the approaches to the Port.

(3) Measures for expanding the capacity of the Port to a set Master Plan.

By way of welfare measure during the Second Plan period the Port has completed nearly 500 houses for the low income group in a site specially acquired for the purpose. A new Hospital in the Port area equipped with modern and up-to-date facilities has been built and brought into use.

To bring outside the Harbour area as much of the offices occupying valuable quay space as are not required for the day to day functioning of the Port, a decision was taken to put up an Administrative Block and demolish the old Harbour Office and put up a transit shed in its place. In accordance with the above, the Administrative Offices building of the Madras Port Trust has been built and brought into use from June 1960. The Signal Station which was located in the old Harbour Office has also been shifted to a new building put up under the Second Five Year Plan at the east end of the newly constructed Passenger Station at North Quay. A number of schemes for further improvement were taken up in the Third Plan period.

Lighthouse and Navigational Aids

The Madras Lighthouse is situated in the main Tower of the High Court buildings very near the port.

The Lighthouse is a centre of attraction to the visitors to the City, who are admitted on payment of 25 P. for each person. School children are admitted at concessional rates.

Aga light

This navigational light is situated at the extreme end of the outer arm protecting the entrance to the harbour and is visible for 6 miles. It is a red flashing light flashing every 0.3 seconds and an eclipse of 2.7 seconds giving twenty flashes to the minute. The lantern is of the Aga L BFD 300, No. 59 fitted with 300 m/m lens and has an Aga single flasher of K. 130 pressure regulator.

Anchorage Light

One white light, Group Flashing, 2 every five seconds, has been erected on the shores north of the Port at a height of 79 feet above sea level. It has a range of 10 miles.

Railway

The Port maintains its own Railway system. It is a mixed gauge railway and is connected with the Southern Railway, broad gauge at Royapuram station on the northern side and metre gauge at Madras Beach station on the southern side. Most of the tracks inside the port consist of mixed gauge, to facilitate easy handling of traffic of both the gauges.

There is sufficient number of locos and wagons with the Port Trust. Recently, a number of diesel locos have been acquired for use inside the Port.

The Port Railway System is not open for regular traffic but facilities are available for running special trains with passengers or tourists. Direct loading of cargo from ship to railway wagons and vice versa is arranged at all quay berths. Communication by road to the Harbour is also excellent.

Goods arriving by sea are accepted for booking to any station in India both broad and metre gauges.

The Railway traffic handled at the Marshalling yard of the Harbour during the year 1960-61 is as follows :

Year	No. of wagons	Tonnage	Freight Rs.	Harbour charges Rs.
1960-61	98,067	1,778,859	2,13,72,941	18,51,635

Bunkering facilities

Bunker is shipped at all quays and sufficient number of lighters is available for bunkering coal to vessels at moorings. It can be procured from the bunkering firms who hold large stocks at plots rented to them in the forshore of the Harbour. All facilities for bunkering fuel oil to vessels at quay berths and also at moorings have been provided.

Water supply

The source of supply is the protected water supply system of the City Corporation. Water for drinking and boiler purposes is available from hydrants at ship's side at the North, South and West Quays. At moorings and other quays it can be pumped from water barges.

Slipway

There are no dry dock facilities at Madras, but a slipway in the Boat Basin capable of handling all of the Trust's own craft exists. The minimum tonnage it can take is 965 tons. In 1900, the port was handling roughly 6 lakhs tons of cargo per year. During the boom years of 1927 to 1930, the traffic increased to one and a half million tons, but later, during the depression of the early thirties, it dropped to just over one million tons. The Second World War hit the port badly until 1944 and the transitional period from war to peace was difficult. A different type of cargo began arriving, chiefly machinery, to replace the dearth of equipment during the war. Madras later became a large important Port for foodgrains when local harvests became lean. The trade at the end of the war rose to over two million tons.

The volume of trade passing through the port has been steadily increasing. For the year 1960-61 the volume of trade at the port was 3,038,427 metric tonnes. Out of this, the foreign trade was about 2.2 million tons, the coastal traffic being about 0.8 million tons. In order to cope with the heavy arrivals of ships and/or, cargo, the Port has commenced working round the clock, three shifts made compulsory from 1-7-1960.

The imports are normally about two-thirds of the total trade. During the year 1960-61, the volume of imports was 2,127,852 tonnes. The main items of imports are foodgrains, petroleum products, chemical manures, coal (mainly for Railways), Iron and steel, newsprint, textiles, cotton, etc.

The exports normally form about one third of the total volume of trade. The figure for 1960-61 was 9,10,575 tonnes. The main items of export are ores (mainly iron ore), groundnut oil, hides and skins, scrap, mica, tobacco, onions, oilcake, cattlefood, etc.

Madras, the Chief City in the south and the eastern terminus of the Railway system, absorbs nearly one half of the total sea-borne commerce.

Air Transport

Madras can boast of a fine airport at Meenambakkam about eight miles from the City. It is well connected with the heart of the City by the G. S. T. Road and Mount Road.

The internal passenger and Cargo traffic are handled by the Indian Air Lines while Air India looks after the traffic outside India.

Apart from linking the City with the big cities of the North, like Delhi, Bombay and Calcutta, important towns in the South are also connected with Madras by air.

With the ushering in of economic development, there is a growing demand for air transport and consequently, modern type of planes like Boeing, Caravelle etc, have been introduced.

Steps are being taken to convert Meenambakkam into a first class international airport.

COMMUNICATION

Post and Telegraphs
Early History

The Post and Telegraph Department in its embryo stage was something vastly different from the wonderful organisation that we know to-day. The first reference to a regular Postal system is contained in the Minutes of Consultation of the East Indian Company of the 7th July 1736, less than 100 years after the founding of Madras, and

the following are some extracts from the Minutes which seem to indicate how casual were the conditions prevailing even in important business circles in those days:—

"As there have been of late frequent miscarriages of packets to and from Madras without possibility of tracing the cause, not knowing the stages where they do happen, as no advice is ever sent us by the neighbouring Residencies, and as this on any emergency may be attended with the worst consequences, it is agreed to establish the following Rules and communicate to the Presidency of Madras, recommending the same to be circulated to the factories and Residencies subordinate to them, as we shall do to those dependent on Bengal:—

"That the packets henceforward be numbered in regular succession for the present season from this time to the end of the year and in future from the 1st January to the last of December.

'That the day and hour of despatch as well as the number be noted on the tickets affixed to the packets and that on every packet the number and date of the next preceding despatch be noted.

'That in order to have the earliest information of the loss of a packet at any time, the Resident or chief of a factory shall regularly give advice of the receipt of each packet to the Resident of the stage from whence it came last.

'That when any packets are found to be missing the Chiefs or Residents at the two nearest stages shall immediately make it their business to examine the Dauks or Tappies very particularly, and punish them severely when they do not give a satisfactory account how the packets came to be lost, giving advice in the meantime to each Presidency."

Nearly 40 years later, in 1774, a Post-master General was appointed and postage was charged for the first time on private letters. The carriage of letters from Madras was charged on a mileage basis and copper tickets were struck for public convenience to be solely used for postal purposes, obviously a precursory of the modern Postage Stamp.

The Post Office having once started its development went ahead rapidly, probably more rapidly than any other branch of communications and in 1785, revised regulations for the Post Office were issued based on those already in vogue in Bangalore.

In 1786, arrangements were made for a fortnightly Mail Service from Madras to Calcutta and Bombay. But, for the next half a century no definite attempt was made to extend or improve the system of Postal communications. However, some development was perceptible with the formation of the Trunk Road Department in 1845 which took interest in the development of good metal roads. Also, the first railway line from Royapuram to Wallajah Road (66 miles) was opened on 1st July 1856 and a Railway Mail Service began to operate in Madras.

Postage stamps came to be introduced for the first time in 1854 and the whole Department was placed under the control of a Director General. The Office of the Post - Master General was separated from that of the Presidency Postmaster, both of which Offices were till then vested in the same Officer. This marked the commencement of the Indian Post Office in its present footing. By 1874, there were nine Post Offices in Madras.

In 1871, through railway communication was established between Madras and other Presidencies. This added considerably to the communications of Madras. During the period 1870-1880, special Postage rates for official letters, V. P. Postage and Money orders were introduced. Telegraph facilities were also made available which could compare favourably with the telegraphic facilities offered in other countries.

Even in the 1930s, some of the most important Newspaper offices were provided with direct telegraphic tape connection to the Post Office.

Telephone Service

Telephone service in the Madras City was set up in the year 1881 by the Oriental Telephone Co., Ltd., under a licence granted by the Government. The number of subscribers is not definitely known, but must have been small, because by 1910 the number of subscribers had only reached 350. This is not surprising when we remember that between 1881 and 1890 very few cities even in Europe had telephones.

The Madras Flying Club was founded in 1930 and it handled the first Total Air Mail Plane in 1932. It may be mentioned here that there was in 1872-73 a bimonthly sea-borne Postal Service between Madras and Rangoon. In 1886, a fortnightly service was introduced between Madras and the Ports on the North-Eastern Coast, alternatively with the fortnightly service between Madras and Rangoon, thus establishing a weekly service in those parts. In February 1888, Mails were sent from Madras direct to Rangoon which brought about a large saving in time and commenced the weekly service between Madras and Burma. The internal carriage of Mails in the Madras City was by Tongas till 1915, when a Motor Service on a small scale with two cars was introduced as an addition to the Tonga Service. In 1917-18, the Tonga Service was completely replaced by a Motor Service.

Recent developments

Postal Services

Prior to 1948, all Post Offices in Madras City were under the Administrative control of the Presidency Postmaster, Madras General Post Office. As the Administration became unwieldy, the Postal services were reorganised and all Town Sub-Offices were constituted into a separate division under a city Superintendent with effect from 20-7-48. The work of this Division also became unwieldy resulting in the formation of another division called Madras City North with effect from 2-1-1953 naming the existing division as Madras City South. Madras General Post Office was the only head office for the entire city. To decentralise the accounts work with a view to have effective check and supervision over the accounts of the sub-offices, Mount Road Sub-Office was upgraded into a Head Office with effect from 3-10-1961.

The number of post offices in city in different years are given below :

1-4-1951	*1-4-1956*	*1-4-1961*	*1-4-63*
66	98	109	122

The number of people employed in City Postal services was 4,253 and 4,916 during 1956 and 1961 respectively.

The number of letter boxes attached in Madras City during 1956 and 1961 was 528 and 631 respectively.

Mobile Post Offices

To provide the facility of late posting, two mobile post offices are functioning in Madras City one in North Madras and another in South Madras. They serve the needs of people employed in business houses, offices and other establishments who generally do not find the time for their correspondence during office hours.

They function on all days of the week including Sundays and Postal holidays. They are stationed at important centres in the evenings and nights.

The frequency of delivery was increased in the areas served by Vadapalani, Madras Aerodrome, Adyar, Indian Institute of Technology and Tiruvanniyur Sub-Offices. The Counter hours were revised at Mylapore, T'Nagar, Vepery, Royapuram and Washermanpet Sub-Offices to commence from 8 A.M. instead of 10 A.M. to enable the office-going public to transact business before they leave for their offices. Madras Aerodrome Post Office has been made to work round the clock.

Many schemes for improvement of Postal Services are in the offing. It is proposed to open 23 post Offices in the city during the Third Five Year Plan including 12 already opened during 1962–63.

Telegraph Services

Madras City is having the biggest central Telegraph Office in Madras State accommodated in General Post Office building. All the important stations in the South and North of Madras are connected to this office. Telegraph services are being rendered both by Morse and Teleprinter since some of the stations are connected by Morse and some by Teleprinter. Madras is also connected to major cities like Bombay, Calcutta, New Delhi etc. A number of V. F. T. systems have been installed between Madras and important stations like Bombay, Calcutta etc. There is a good number of teleprinter circuits rented to private bodies and other administrations such as Press Information Bureau, Andhra Patrika, Daily Thanthi and Civil Aviation Department, etc.

In addition to the above office many more units have been installed in this connection.

Printergram Service between C.T.O. Madras

and subscribers was introduced with effect from 1-1-62 by installing a 50 lines manual teleprinter switch board.

Number of Telegraph Offices

As on 1-4-1951	1 D.T.O 30 Combined offices
As on 1-4-1956	2 D.T.Os. 36 Combined offices
As on 1-4-1961	3 D.T.Os. 62 Combined offices

Telephone Service

The Management of the telephone service changed hands to the Madras Telephone Company Limited in the year 1923. The Telephone Service in the City was run by that Company till 1943 when the entire service was first taken over by the Government of India in the Posts and Telegraphs Department and was called the MADRAS TELEPHONE DISTRICT functioning directly under the Director General, Posts and Telegraphs.

Before the last world war, there was very little demand for telephones. The growth of telephones was slow under the British rule. The demand for telephones did not overstep the capacity of the installations to provide telephones, but after Independence and especially during the first two FIVE YEAR PLAN periods, the demand for telephones increased enormously owing to the public awakening and industrial development and the demand outstripped the capacity of the installations.

After taking over the Madras Telephones from the Madras Telephone Company, it was observed that the network had grown rather haphazardly and a planned development was necessary to assess and forecast actual demands and locate and expand the Exchanges from a long range point of view. A systematic study was therefore undertaken and a Plan prepared and implemented during the First and Second Five Year Plans to the extent practicable.

Besides the local telephone network, the trunk telephone exchange at Madras is also in the jursidiction of the Madras Telephone District. The Trunk Exchange was formerly under the administrative control of the Postmaster General, Madras and this was merged with the Madras Telephone District in the year 1946. Planning for adequate trunk switching positions, introducing modern methods, had also to be worked out simultaneously with the expansion of local telephone net work in Madras and in all other places in the country. The Telephone Service in the city has made rapid developments and the Department is trying to keeping pace with the modern needs by introducing direct dialling, Telex service, etc.

CHAPTER IX

TRADE AND COMMERCE

Trade and Commerce

In 1939, Madras was founded with a view to facilitate the trade of England with India. They had no other object. Their desire to be near weaving and dyeing centre perhaps decided the choice. From the 24th September 1641, Madras became the chief factory on the Coast. Charles Lockyer, a young civilian, who landed here in September, 1702 observes that "Fort St. George on the Coast of Coromandel in 13°30' North latitude is undoubtedly a Port of greatest consequence to the East India Company for its strength, wealth and great returns made yearly thrice in Calicos and muslim."[1]

The modus operandi of the East India Company in procuring the 'cloth' can now be described. Right from the beginning, down to the end of the 18th century the Company's traders were themselves the public officers of the company as well. They employed influential and capable 'natives' as the Company's merchants, to supply cloth for export to England and to serve as channels of distribution for the European goods imported by the Company. Money was distributed by the Company to those merchants who advanced to the weavers, painters dyers etc. and the merchants were held responsible for the money advanced until the delivery of the finished goods. It was also part of their work to find suitable market for the disposal of European goods. The first among these merchants was designated the Chief Merchant. It should be remembered that these Chief Merchants were different from 'Dubashes' who seem to have been "the agents employed by individual factors in connexion with their private trade."

The East India Company did not fail to make use of the good offices of the then Arcot Nawab for the easy procurement of cloth. In 1732 at the instance of the Governor, the Nawab of Arcot sent round a circular to all the officials in his territory to the the following effect.

All the merchants in the territory should sell their cloth products only to the Governor of the East India Company and his men. The stocks on hand should immediately be delivered to the 'gumastahs' of the East India Company. Those varieties of cloth not wanted by the East India Company could be disposed of otherwise. The officials should carefully see that no merchant or broker other than the Company's men interloped and effected purchases of cloth. Fines should be imposed on transgressing merchants.

Later on even the district collectors, like the Collectors of Salem and Coimbatore, were enjoined to procure cloth for the Company. At one stage the procurement of cloth constituted the chief function of the Collectors.

By 1728 the East India Company were sending coral and silver to Madras to be exchanged for diamonds from Golconda and the trade of the port continued to flourish. The Armenian and Jewish Inhabitants came into greater prominence during this period. Commerce with Manila was entirely in the hands of Armenians and they were blamed by the Governor not only for their haughty behaviour but also for carrying their merchandise from Europe in Danish and other Foreign ships in preference to English bottoms. Mr. Mesrovb in his book entitled 'Armenians in India (1937), states that the Armenians had begun to trade, at the beginning of the 16th century, with the Madras Coast and that some of them had settled permanently at Madras as early as the year 1666. The following figures' Show cloth exports from Madras during this period.

	Export	
Year	Pieces	Value in £
1771	114,710	261,893
1772	273,766	523,094
1773	134,789	505,533
1774	207,086	644,563
1775	181,950	583,765
1776	209,538	515,557

1 Vestiges of Old Madras by Love

Year	Export Pieces	Value in £
1777	224,183	492,926
1778	296,182	422,213
1779	74,676	203,186
1780	170,130	257,626
1781	95,888	233,643
1782	72,188	204,163
1783	...	...
1784	44,810	116,883
1785	45,352	115,632
1786	43,240	97,511
1787	38,641	84,598
1788	96,455	191,826
1789	112,216	225,169
1790	126,221	253,625
1791	144,996	475,590
1792	240,108	577,400
Total	2,884,105	6,986,396

[1]'Charka' its history - by Phanthain Baker & Varadachariar. Translated in to Tamil by R. Krishnamoorthy

Mr. Milburn in his book 'Oriental Commerce', states that 'piece goods' continued to be the primary articles exported from Madras to England and America during the period 1792 to 1809. The figures[1] of imports into and exports from Madras to different places for the year 1805 are as follows:

Place	Value of piece goods imported	Value of piece goods exported
1. London	13,000	1,46,811
2. United States of America	...	12,44,494
3. Bombay	74,749	88,570
4. Northern Circar	19,180	5,59,146
5. Malabar Coast	96,905	1,05,828
6. Bengal	3,37,546	89,400
7. Penang and Far East Countries	...	9,25,892

Mr. Parkinson confirms the statement of Mr. Milburn. "The Company (1809) exported to Madras, from England a quantity of Woollens, lead, iron, copper and naval stores; this in addition to the supplies for the English community there. From Madras the Company imported piecegoods and little else. It also exported from Madras to China a certain amount of piecegoods, with a little cotton; while sugar and saltpetre passed through Madras on the way to China and England. Altogether, the trade there, was not considerable[2]

Madras at that time also supplied Bengal with salt, cordage and re-exported naval stores; and Bengal supplied Madras with rice of which there was at that time, for the reasons already given, a constant shortage in the South. With roads and transport comparatively undeveloped, the population of Madras was, apart altogether from the ravages of war, much too large to subsist on the crops grown in the neighbourhood.

As regards cordage, the excellence of Madras rope manufacture had long been acknowledged throughout the East. As early as 1726 the Chief Gunner at Madras begged Government to prohibit the import of coir cables because "these cables sold to ships in this place if damaged or not well made, may pass for Madras Cables and bring an ill repute on the cables and cordage of this place which has hitherto the Repute of Laying cables the best of any port of India." And in 1799 reference is made to "cable of 17 inches, by order of the Admiral, from a species of Aloes that grows wild in this country."

During the early years of the nineteenth century, raw cotton and indigo were added for the first time to the Madras export list. The former coming mainly from the Tirunelveli, Ramanathapuram and Ganjam Districts, and the latter from South Arcot. The indigo trade was eventually killed by the synthetic German product, but raw cotton was continued to be exported in considerable quantities.

Gradually, British cotton fabrics began to flood world markets and the Madras piece-goods lost their charm. The reaction in Madras was the closure of the entire commercial establishment of the East India Company in 1835, spelling great disaster to the weavers.

Till 1813 India had been chiefly an exporting country. From then onwards it became suddenly an importing country. As Marx observes: "India, the great workshop of cotton manufacture for the world since immemorable times became now inundated with English twists and cotton stuffs."

1 Quoted in 'Charka' Its history By Pan Varadhachariar translated by R. Krishnamoorthy

2 Quoted in the Madras Tercentenary Commemoration Volume.

The phenomenal rise in the exports from England to India may be judged by the fact that between 1818 and 1836 the twist imports into India rose in the proportion of 1:5200. In 1824 the exports of British muslins to India hardly amounted to one million yards. By 1837, they exceeded 64 million yards.

The historian H. H. Wilson, observes in this connection: "It was stated in evidence (in 1813) that the cotton and silk goods of India upto the period could be sold for a profit in the British market at a price 50 to 60 per cent lower than those fabricated in England. It consequently became necessary to protect the latter by duties of 70 and 80 per cent on their value, or by positive prohibition. Had this not been the case, the mills of Paisley and Manchester would have stopped in their outset...They were created by the sacrifice of the Indian manufacturer. Had India been independent, she would have retaliated, would have imposed prohibitive duties upon the British goods and would thus have preserved her own productive industry from annihilation. This act of self-defence was not permitted to her; she was at the mercy of the stranger. British goods were forced upon her without paying any duty, and the manufacturer employed the arm of political injustice to keep down and ultimately strangle a competitor with whom he could not have contended on equal terms."

We may now take up the controversial issue of the monopoly charter of the East India Company. The control of the whole trade from and to the port of Madras was originally in the hands of the Company. But the ubiquitous evil was the desire on the part of every servant of the Company as soon as he landed in India to amass easy money. From the pages of some of the unpublished letters of Charles Bourchier and George Stratton (1771 to 1802) the irrepressible cry of 'Money, More Money' arises in an endless blast. Nervyn Davis observes: "One thing only had brought these Englishmen to India, one thing only held them here, 'Money'." The Company's servants from the very early days engaged themselves in private trade and feathered their nests. They bought goods locally on their own account and shipped them home to be sold for their private profit. There were also private persons making use of the Company's settlement to trade on their own account and they were called 'interlopers'. The Company at one time strongly objected against this private trade. Later on, the Company licensed 'free merchants' so long as they did not infringe the Company's monopoly of trade between India and Europe.

A proclamation issued by the Directors of the Company in 1734 brings out clearly the nature of goods in which the commanders of ships were permitted to trade and also the commodities monopolised by the Company.

"Goods reserved for the Company's Trade:— Muslins, Callicoes and all Sorts of Goods and Merchandizes made or mixed with Cotton or Silk or Herba[1] of what Denomination soever, Carmenia Wool, Coffee, Cotton Wool, Cotton Yarn, Cowries, Pepper, Raw Silk, Saltpetre, Redwood, Tea, Turmerick.

Commodities in which Commanders may trade:— 'Aggats, Ambergreece,[2] Bezoar stones,[3] Cambogium,[4] Camphire,[5] China Root,[6] Cordivants[7] of all Sorts of Leather, Cotch,[8] Diamonds, Pearls and all Precious Stones, Gallingal,[9] Goa Stones,[10] Olibanum,[11] Oppoponax,[12] Rangoes,[13] Roman Vitriol,[14] Safflower,[15]

---

1 Herba, grass cloth; whence 'Herba Taffeties, Herba Longees.
2 Ambergreece, ambergris, a product of the whale, used in perfumery.
3 Bezoar stone, an animal concretion, employed medicinally; from Pers. Pazahr antidote to poison.
4 Cambogium, gamboge, a gum-resin from Cambodia, used in medicine and as a pigment.
5 Camphire, camphor.
6 China Root, the root of the Smilax China, akin to sarsaparilla used in medicine.
7 Cordivant, originally goat-leather from Cordova; afterwards applied to horse-leather, etc.
8 Cotch, catechu, derived from the Acacia catechu, and used for tanning sals and nets;
9 Gallingal, ginger; from Ar. Khalanjan.
10 Goa stone, an artificial bezoar stone, used medicinally.
11 Olibanum, an aromatic gum-resin, used for incense; perhaps from Oleum Libani.
12 Oppopanax, oppopanax, a gum-resin employed in medicine.
13 Rangoes, long beads, used in barter with the natives of Madagascar and the cape.
14 Roman Vitriol, copper sulphate, known in India as mor-tutta. 'Motoota or Romin Vittriall......it is a Decan commodity.
15 Safflower, the flower of the carthamus tinctorium used as dye and for making rouse.

Sanguis Draconis,[16] Scamony,[17] Spikenard,[18] Tutenague,[19] Wormseeds."

By 1710 when, as we have seen, Madras trade was in a flourishing condition, there were 30 free merchants among the residents at Fort St. George and before the end of the century the foundation had been laid by some of the firms still trading in Madras to-day notably Messrs. Binny and Company and Messers Parry and Company. The original personnel of these firms consisted for the most part of free merchants in partnership with servants of the East India Company.

But the Charter of 1793 drove the thin edge of the wedge into the Company's monopoly and they were thenceforward obliged to provide 3000 tons of cargo space annually for free merchants between India and London. And by 1800 all servants of the Company were forbidden to trade privately–or rather the order to that effect which had been passed much earlier was for the first time effectively enforced.

Thus the free merchants were able to strengthen their position and were strong enough to compete successfully for the home trade when, under the 1813 Charter, the Company finally lost its trade monopoly.

The Company, however, continued as a trading body for another twenty years, until under the Charter of 1833, they became for the first time an administrative body only and the whole of the trade was finally thrown open to private enterprise.

Towards the close of the 18th century, a prohibitory order was issued by the Government absolutely forbidding the Company's officers from engaging themselves in private trade and asking them to choose between resignation of their public offices and withdrawal from commercial pursuits.

A word about the slave trade. Domestic slavery was officially recognised at Madras. Slaves had to be licensed and purchases and sales had to be registered at the Choultry court. These were done by the 'Adhikari' or the Indian Governor of the town. In 1711, the registration fee was 6sh. 9d. for every slave. The fee was afterwards divided betwixt the Company, Justices and servants. The trade was mainly done by the Dutch at Pulicat who employed workers at Madras for slave catching. The real cause of the trade was economic.

A. D. 1646 was a critical year in the history of the Madras City. A disastrous famine ravaged the City. The Portuguese settlement of Santhome suffered most. Men preferred bondage to black death. A brisk trade in export of slaves sprang up which the European powers turned to the best advantage. Slaves were exported to the East Indies. Even children got involved in this trade.

Thirty years rolled by until at last in 1682 complaints against the trade grew louder and louder, the authorities at Madras considering the scandal that might accrue to the Government and the great loss that many parents may undergo, prohibited the export of slaves of any age whatsover. A notification to the effect was published. But this law remained a dead letter for five years. Another great famine occurred in 1687 and with it the traffic in slavery raised its ugly head again. Men were on their beam-ends and preferred the bonds of slavery to the jaws of death. Despairing of ending a traffic into which the victims voluntarily bowed their necks, the Government relaxed their prohibitory regulation. One pagoda was charged by the Government on each slave sent off the shore.

The relaxation of the prohibitory law evoked complaints from unhappy parents. The Government, therefore, directed in February 1688 that no slaves should be exported until they were duly examined by the Justices of the Choultry and their names registered in a book kept for the purpose.

Even this did not go far enough. The traffic in children assumed grave proportions. A number of Muslim children were kidnapped. A class of crimps arose who made it a profession of combing the rural parts and enticing away innocent children. The enormity of the crimes reached the ears of the Emperor at Delhi. The Company received great complaints and troubles from the country Government. Aurangāzeb was antipathetic to slave traffic. That put the English on the alert. The business itself was dull and brought little 'advan-

16 Sanguis Draconis, dragon's blood, a bright red gum-resin.

17 Scamony, scamony, a gum-resin used in medicine.

18 Spikenard, a fragrant oil derived from several plants.

19 Tutenague, a Chinese alloy of copper, zinc and nickel."

tage' to the Company. Therefore it was ordered that after the 20th May 1688 no person belonging to the City of Madras 'do directly or indirectly buy or transport slaves from this place or any adjacent port (whereby the Government may be any way troubled or prejudiced)'. Penalty for the infringement was pitched at 50 pagodas for each slave. Repetition of the crime was visited by the loss of the ear in the pillory.

The prohibitory enactment, stiff as it was, could not put an end to a lucrative trade that had entrenched itself in vested interests built through decades. The Government's enthusiasm did not peter out. They proclaimed in 1790 'a reward of 30 pagodas for the discovery of every offender, to be paid on conviction, and of 10 pagodas for each person of either sex who should be delivered from slavery in consequence of such delivery. This paid rich dividends and Madras eventually succeeded in supressing the traffic.'[1]

The economic development of the East Indies in the early part of the 18th century is in no mean measure due to the part played by the South Indian slave labour. It is known to very few that it was these Tamils who introduced the cultivation of paddy into those lands. Perhaps they were also responsible to diffuse Indian tradition and culture into those far-off islands.

Having dealt with in some detail about the picture on our side it will but be appropriate to get to know of what was happening in England.

The Company reaped huge profits in their trade with India and it is said that in 1676 to every shareholder of the Company accrued a bonus equal to their investment and that on these two amounts together they got dividends at 25% for a period of 5 years. In 1681 it was announced at the House of Commons in England that the value of the Indian piecegoods purchased was to the tune of 3 lakhs a year. The imports into England continued more or less at the same level in spite of the levy of an import tax ranging from As. 9 to Rs. 2.25 per piece (மடி). In 1700 during the reign of William III a law was passed to prohibit the import of printed or dyed calicos from India. Consequently plain calicos were imported and got printed in England. Even this was stopped in 1722. Sixteen years hence the ban on 'mixed cloth' was lifted and another ban was imposed on pure cotton fabrics. In 1774 another law was put on the Statute Book that all cotton fabrics sold in England should be of local manufacture and that Indian stocks intended to be despatched to other countries alone could touch London. These laws were passed with the ostensible object of eliminating the competition with the cheap Indian goods and offering protection to locally made cloth. Certain varieties of cloth like muslin and ordinary calico were exempted from this prohibition; but were heavily taxed upto 70% to 80%. The English goods imported into India were free from any import tax. It is little wonder that the Indian handloom industry received a set back.

The City's population has been growing pari passu its trade.

1639	7000
1647	19000
1674	50000
1685	300000
1691	400000
1941	881445
1951	1416056
1961	1729171

The handloom industry still affords a means of livelihood on much the same old cottage industry lines as of yore, to hundreds of families in and around Madras. There are today in Madras City about 10,334 looms working. The annual production of the looms is estimated at 8.53 million yards of cotton goods, art silk and druggets.

The total value of exports of handloom piecegoods reached formidable figure of ten crores during 1953. Today the exports have fallen down to amount Rs. 3.5 crores (1960-61).

The artificial harbour of Madras came into existence in 1896. The lack of harbour facilities discouraged the trade. The idea of a breakwater to protect shipping from the damages which attended it in the open roadstead off Madras, and to obviate the risks attendant upon landing goods and passengers through the treacherous surf, had long exercised the minds of the local merchants. The difficulties experienced in landing due to lack of a harbour find description in many an account left by visitors to this port. William Hackey, for instance, narrates how passengers landed and were taken to the South Sea Gate by 'masula'

[1] Quoted in the Madras Tercentenary Commemoration Volume.

boats, made of planks sewn together, so as to withstand the breakers.

There was no trade in stormy weather; the ships avoided monsoon months. In fine weather they lay at anchor outside the surf two miles from the shore and the goods and passengers were all landed by crazy 'masula' boats and slender 'catamarams' through the surf on to the beach. The boatmen waited for a big wave, came in on the crest of it till it was spent, paddled hard to get past the breaking place of the next wave so as to be carried by it right upto the beach. The boatmen had their heyday and made good profits of the passengers. The road-stead was often risky - there was the risk of currents, of a high surf even on the calmest weather and of unexpected gabs. Hurricanes and cyclones are a frequent feature of the coast. Sometimes the surf which varied made it impossible for native boats to be safe. The presence of sharks in the waters was a source of perpetual dread to the boatmen and to the swimmers.

The Harbour gave an impetus to the trade. The more the Harbour grew, the more the trade flourished and prosperity smiled. Over 1200 vessels now enter the Harbour annually with a total net tonnage of more than 21 lakhs.

The opening of the Railway system also gave a further fillip to the trade. The first line to be inaugurated was the line from Madras to Arcot. Since then the progress has been rapid and now we have a net-work of railway lines.

Trade and Commerce

The Trade and Commerce of Madras broadly falls under the following heads :—

a) Rail and River borne Trade
b) Coastal Trade
c) Foreign Trade
d) Road Trade
e) Air-borne Trade

Rail and River borne Trade of Madras Port

The extent of trade carried on by Madras State with other States and foreign countries is considerable mainly due to the development of industries within the State, the existence of a first class port together with a number of subordinate ports along the coast and the facilities of rail and road transport.

By and large the incoming goods to Madras Port by rail and river boats exceeded the outgoing goods in net weight. It is true of all commodities except oil, oil cakes etc., pulses and salt. During 1958-59 Madras was sending out more of these excepted commodities to other States than it got from them. This trend did not continue in the succeeding years. Textiles is the fourth commodity which showed a surplus net export during 1960-61.

The following statement will indicate the direction of the inland trade arranged in the order of merit.

TABLE I

	Commodity	*Bulk imports from*
I	Coal and Coke	Andhra, Bihar, Bombay, Madhya Pradesh
II	Pulses	Andhra, Uttar Pradesh, Punjab, Hinterland, Madhya Pradesh
III	Manganese	Mysore
IV	Cement	Hinterland, Andhra Pradesh
V	Iron and Steel	Bihar, Bombay, West Bengal
VI	Oil cakes etc	Andhra, Bombay
VII	Wood and Timber	Kerala

	Commodity	*Bulk Exports to*
I	Pulses	Hinterland, Mysore and Andhra Pradesh
II	Coal and Coke	Hinterland, Mysore and Andhra Pradesh
III	Iron and Steel	Hinterland, Andhra Pradesh and Mysore
IV	Oil and Oil cakes	Hinterland, Andhra Pradesh and Mysore

Rail and River borne Trade of Madras, 60-61

Coal and coke, agricultural commodities, iron and steel represent the major portion of the trade carried by rail and rivers to Madras.

The imports to Madras by rail and river boats exceeded the exports in net weight. It is true of all commodities except oil, oilcakes etc., pulses salt and textiles.

Of the total 13.84 million quintals of goods imported into Madras in 1960-61 coal and coke accounted for 35.345%. This is exclusive of the coal and coke consumed, by Railways. Railways consume approximately 15,00,000 tonnes of Coal a year. Pulses account for 14.736%, Manganese ore 13.463%, Cement 11.6% and iron and steel 10.4%. The other commodities accounted for about 14%.

Of the total 8.52 million quintals of exports from Madras 42.4% was accounted for by pulses, 24.1% by coal and coke, 14.8% by oil, oil cakes etc., and 14.6% by iron and steel. Madras Port has the biggest share of trade with its immediate hinterland (i. e.) Madras State. Its export to various places in the State accounted for 51.8% while the import was about 15.1%.

Coal and coke, pulses, iron and steel, and oil, oilseeds etc. were the chief commodities exported from Madras to various parts of the State. The chief commodities that were imported in the City were cement, coal and coke, iron and steel, pulses, wood and timber. Since the State is deficient in coal and coke, the import of this item was significantly high and the chief suppliers were Andhra and Bihar.

As regards the trade with other States, the trade with Andhra ranks first. Andhra gave more and took less. About 36.3% of the total imports was from this State, while 16.6% of the total exports was bound for this State. 'Coal and coke' was the biggest item of export to Madras from this State accounting for 70% of the total. The other commodities imported into Madras were cement, pulses, oil and oil cakes, wood and timber. Among the articles exported to Andhra State, agricultural commodities took the first place.

Mysore ranks second among the States in sharing trade with Madras. It has a significant trade with Madras. About 21.5% of the total exports was bound for this State, while 15.1% of the total imports was from this State. Manganese ore was the chief item of import to Madras from Mysore. Barring a very negligible proportion of import from West Bengal, the entire import was from Mysore. Coal and coke, iron and steel and pulses were the chief items exported to Mysore.

In spite of its close proximity to Madras State, Kerala State does not have enough trade with Madras City. This is probably due to the smallness of Kerala State and it has not much to send out. What it imports from Madras state may not pass through the city.

Madras carries on trade withe other States as well. Among these States Bombay, Bihar, and West Bengal are significant. In each of these States the net tonnage of exports to Madras Port exceeded that of imports.

Bombay State exported 0.76 million quintals of goods to Madras Port and imported back only 0.13 million quintals of goods. The Chief items of export to Madras were coal and coke, iron and steel, oil, oilcakes and pulses.

Bihar took salt and gave coal and coke. The import to Madras was almost tenfold that of export from Madras.

West Bengal exported iron and steel, hides and skins and coal and coke and imported in return agricultural commodities.

Madhya Pradesh continued to show a tremendous imbalance of trade with Madras. Coal and coke, pulses and iron and steel went out of this State while the import of commodities into this State was comparatively negligible.

Madras also has some commercial ties with Uttar Pradesh and Punjab.

Coastal Trade

Under this head will come all exports from Madras Port to other ports in India via sea routes and imports into Madras Port from other ports in India via sea routes. Besides Madras Port, there are eight important minor ports in the State. They are Cuddalore, Nagapattinam, Kilakarai, Dhanushkodi, Pamban, Tuticorin, Kulasekarapattinam and Colachel. The bulk of the trade is carried through Madras Port.

The following statement will give the coastal trade of Madras Port for the years 58-59 to 60-61.

	1958-59 Tonnes	1959-60 Tonnes	1960-61 Tonnes
Imports	6,18,512	768,848	767,857
Exports	51,252	47,784	49,501
Total	6,69,764	816,632	817,358

Compared to 1958-59, there was an increase of 24.3% in coastwise imports during 59-60 and a decrease of 6.8% in exports. The trend has changed during 1960-61. The coastwise imports have fallen by 0.1% from the figures for 1959-60, while the exports have registered a rise of 3.6%

The following table gives the quantity of important commodities imported and exported during 1960-61 through coastal regions.

TABLE II

Name of the Commodity	*Imports in Tonnes*
Oil	286,866
Foodgrains	1,168
Coal	362,840
Chemical Manure	248
Machinery	1,720
Chemicals including Soda and Sulpher	12,060
Building Materials and Metals	25,863
Iron and Steel	14,769
Other Cargo	62,323
TOTAL	767,857

Exports (in Tonnes)

Ores	76
Hides and Skins	649
Tobacco	1,251
Scrap	176
Mica	4
Vegetable oil	19,641
Other cargo	27,704
TOTAL	49,501

From the above tables it will be seen, coal and oil form the bulk of the imports. They work out to 47% and 37% respectively. As regards exports, vegetable oil and miscellaneous items top the list.

The figures show an adverse balance of trade. They also reveal that finished products are the major items of export, while unfinished products were the main items of import.

Foreign Trade

The important position occupied by Madras port in India's foreign trade has already been dealt with exhaustively in another chapter. The figures for Madras Port have been continuously showing an adverse balance of trade. The following figures show the imports and exports through the port of Madras during the four years 57-58 to 60-61.

Year	*Imports* (in lakhs of rupees)	*Exports* (in lakhs of rupees)
1957-58	9,563	4,221
1958-59	8,373	4,294
1959-60	8,991	5,339
1960-61	9,144	4,960

The exports have dropped from the 1959-60 figures by nearly 7% while the imports during the same period have gone up by nearly 2%.

Of the total imports during 1960-61 capital goods such as machines, iron and steel, transport equipment etc. accounted for 36.8%.

Cereals and cereal products accounted for 17.6%. Other consumer goods such as paper, raw cotton, petroleum products accounted for another 45%. The chief suppliers of capital goods continue to be U.K., U. S. A., West Germany and Japan. The export commodities except cotton piece goods are all unfinished products. Hides and skins, cotton goods, tobacco, manganese, iron ore, onions and spices, sugar and oils are principal items of export. Japan and European countries (other than U. K., West Germany) are the chief buyers of ores. The exports to these countries work out to nearly 90%. U.K. buys most of the hides and skins exported from Madras. Mica is chiefly exported to West Germany and U.S.A.

The Western countries exchanged capital goods and foodgains with mineral ores and agricultural products, while Asian countries exchanged cereals and cereal products with cotton piece goods, fish, tobacco and sugar at Madras Port.

TABLE III-A

Statement Showing the Principal Articles Imported into the Port of Madras from Foreign Countries by Sea During the Year 1960-1961

No.	*Commodity*	*Value (in Lakhs of Rupees)*
1	Machinery and Mill work	1,802
2	Cereals and Cereal preparations	1,612
3	Cotton raw	878
4	Iron and Steel	848
5	Transport equipment	720
6	Petroleum products	364
7	Sulphate of Ammoniam	165
8	Rubber raw	129
9	Artificial silk yarn	68
10	News Printing Paper	117
11	All other articles	2,441
	Total	9,144

TABLE III-B

Statement showing the principal articles exported from the Port of Madras to foreign countries by sea during the year 1960-61 (B)

No.	Commodity	Value (in Lakhs of Rupees)
1	Leather	2,303
2	Cotton piece goods	395
3	Tobacco	399
4	Iron ore	336
5	Mica	209
6	Manganese ore	189
7	Onions	56
8	Coffee	97
9	All other commodities	976
	Total	4,960

Table III-A gives the principal articles imported into the Port of Madras from foreign countries by sea during the year 1960-61. Table III-B gives the principal articles exported from the Port of Madras to foreign countries by sea during 1960-61.

Road Trade

Madras City is linked with all the major cities and towns by well laid roads. It retains its strategic importance as the chief commercial centre of the State. Lorries, handcarts and bullock carts move in and out of the City every day and night bringing in and taking out commodities of all kinds. A flourishing trade is being carried on through the well-knit roadways.

Unfortunately no precise statistics for "Road trade" are available with any of the departments. But it is a known fact that the city gets a sizeable portion of its daily requirements like vegetables, rice, fuel etc. through lorries.

During 1960-61, 3,57,489 lorries carrying goods (vide Table IV) have passed through the three checkposts of the Commercial Tax Department, besides carts, which are not checked at these posts. These checkposts are established at three important entrances to the City.

They are located at the following places: 1) Mile 8/2 at Red Hills on Grand North Trunk Road 2) Mile 14/1 at Poonamallee on Grand Western Trunk Road 3) Mile 15/0 at Kadaperi on Grand Southern Trunk Road. The establishment of these checkposts has been authorised under Section 42 of Madras General Sales Tax No. 1 of 1959. Even though the purpose of these checkposts is to prevent evasion of taxes, (Lorry owners are expected to carry a delivery order or a note or a sale bill for the goods transported) the number of lorries checked at these posts gives some idea of the Road Trade of the City. The source and value of the commodities carried by the transport vehicles are not available.

The following commodities move out of the City:

Machinery, Iron materials, Groceries, Electrical goods, Rubber goods, Tea and Cycles.

The commodities that are coming into the City are many and varied. We list below some of the important commodities.

Rice, Firewood, Charcoal, Chillies, Sago, Rubber from Malabar, Cocoanut, Sugarcane, Jaggery, Palm gur, Sugar, Cocoanut oil, Gram, Lusk, Salt, Flower, Vegetables and Bananas, Dressed hides and skins, Paper, Cardboard, Matches and Crackers.

On an average a lorry carries 5 to 6 tons of cargo. Calculating even at the rate of 5 tons per lorry, the total quantity of commodities moved into and out of the City will come to more than 1.75 million tons. The above figure is only a very rough estimate of the Road Trade.

Besides the three main highways guarded by the checkposts, there are four or five important roads leading to the City. Lorries and carts ply along these roads day and night, carrying goods into the city. These roads are not guarded by checkposts.

Thus the actual trade may be very much more than what passes through the three checkposts.

TABLE IV

Statement Showing the Number of Transport Vehicles Passed Through Checkposts In 1960–1961

Checkpost	Number of Lorries passed
Red Hills	80,711
Kadaperi	1,43,255
Poonamallee	1,33,523
Total	3,57,489

Source-Administration Report 1960-61
C.T.O.

The purpose of these checkposts is to check evasion of taxes. Lorry owners are expected to carry a delivery order or note or a sale bill for the goods transported by them.

Air Trade

Air transport has the advantage of fast, speed and unbroken journeys over land and sea. It is still however in a growing stage and suffers from limitations of high cost of service, dependence on atmospheric conditions and greater risks. Hence, its main function at present is that of providing express passenger services and carrying mails and perishable goods.

Madras City can boast of a fine airport at Meenambakkam. The internal passenger and cargo traffic are handled by Indian Airlines Corporation, while Air India looks after the traffic outside India.

Madras Airport on an average despatches 1,25,000 kgs. per month of cargo to various destinations through i. a. c. The cargo consists mostly of handloom goods, fountain pens, motor and machinery parts, flowers, newspapers, B.C.G. Vaccine etc. Goods weighing 62,000 kgs. are received from different stations every month. They consist of machinery parts, radios, medicines, plastic goods, electrical equipments etc.

As regards trade outside India, Madras receives through Air India 10,000 kgs. of cargo per month. The outflow of goods too comes to nearly 10,000 kgs. per month. Cargo uplifted consists, of various commodities, such as machinery, handloom goods, sheep,castings, mica, sandalwood oil, films, medicines, tobacco samples etc.

As mentioned earlier, the trade through air is only at an infant stage.

Cloth Trade

In tracing the history of Trade and Commerce in Madras City we have highlighted how textiles, especially handloom fabrics, have played a dominant role in the earlier centuries. The chief attraction was cotton fabrics, muslins, dyed stuffs and white calico.

The cloth trade can be broadly classified under 3 heads :

1. Mill-made cloth
2. Handloom cloth and
3. Khadi

There is no source which can with a measure of accuracy furnish us with data relating to cloth trade in the City. We have relied on (1) the estimates furnished by the Madras Piece goods Merchants Association, (2) the statistics and estimates furnished by the State Handloom Board and (3) the literature and data collected from the Khadi and Village Industries Board and other institutions which engage themselves in Khadi trade.

The Census Organisation in this State has also undertaken a survey of the handloom industry. The data collected under that survey have also been made use of.

Mill made cloth

The Buckingham and Carnatic Mills situated at Perambur, a north-western suburb of the city, were founded by Messrs Binny & Co. over 75 years ago. They give employment to about 14,000 persons and have rightly won widespread acclaim not only for the quality of their goods but also for the admirable provisions made for the health, recreation and education of their employees and their children. The company is the largest composite mill in Asia and spins yarn and weaves cotton cloths of various descriptions. It operates 1,19,960 spindles and 2788 looms and dyeing and furnishing machinery.

The Buckingham and Carnatic Mills are the chief sources of supply of textiles to the City. They supply about 200 standard bales (100 metres per bale) a month, for city distribution. This is inclusive of supply from its subsidiary concerns, the Bangalore Woollen, Cotton and Silk Mills, Bangalore.

The city gets its supply from other areas too. Mettur Mills supply 230 bales every alternate month to the city wholesale dealers for distribution to retailers. Other mills in the State (Coimbatore and Tirunelveli) supply about 500 bales in a month.

There are about 250 wholesale dealers in the City, who represent about 50% of the total number of wholesale dealers in the State. The number of retailers in the city is about 1500. Prior to the separation of Andhra, the city was importing from outside the State 11,000 bales (1200 yards for each bale) of cotton piece-goods.

The imports now amount to 10,000 bales (1000 metres per bale) of Art silk and cotton piece goods. The outside sources in the order of preponderance are:

Bombay, Ahmedabad, Bangalore, Delhi and Sholapur. Of these, Bombay and Ahmedabad are the major suppliers.

The annual whloesale transactions in the city may range between Rs. 25 and Rs. 30 crores. The average value per bale is Rs. 1,750/-.

The quantity of cloth lifted by the city retail traders in a month can be estimated at about 1,300 bales and the annual per capita consumption at 20 yards (of which 10 yards are handloom). The popular varieties of cloth consumed in the city are chintz, voiles, shirtings, dhoties, sarees, coatings, towels, chadar (bed spreads) drills, mulls and khaki drill.

Handloom Trade

In the year 1921 there were only 1,527 looms in the city as then constituted. The subsequent growth of the industry is indicated below:—

Year	*Looms*
1941	1,791
1947	3,884
1951	11,006
1954	11,966
1955	6,250
1961	8,223 (Registered as per 1961 Census Survey)
1961	10,334

In addition to 8,223 registered looms there are 2,111 unregistered looms. The number of looms in the co-operative field is 2,092. For every 167 persons in the City there is one loom. The total production of handloom cloth is estimated at 8.53 million yards as shown below:

	Co-operative Sector (in Million yards)	Outside co-operative Sector
1. Sarees	0.12	...
2. Dhoties and other utility varieties	0.21	0 24
3. Lungies and Madras Kerchief	0.18	7.78
Total	0.51	8.02

It is very difficult to gauge the turnover of handloom fabrics. Every small retail shop in textiles sells both handloom and mill cloth.

There are 14 handloom co-operative depots in the city. The turnover of these depots alone for the years 1960 and 1961 comes to Rs 19,08,605,70 and Rs. 23,95,528,36 respectively. The popular varieties of handloom cloth produced and sold in the city are lungies, shirting (check pattern), pocket handkerchiefs, Madras handkerchiefs, 'Bleeding Madras' shirts and sarees.

Apart from catering to the local consumption the trade earned valuable foreign exchange by exporting the goods. The export markets are shown against each variety.

(a) Lungies-Ceylon, Malaya, Singapore, Aden and East Africa
(b) Shirtings-Some of the fast varieties exported to U.S.A.
(c) Pocket handkerchiefs-exported to countries mentioned in (a)
(d) Madras Handkerchiefs-West Africa
(e) Bleeding Madras-U.S.A., U.K. and Hongkong

Most of the varieties of goods produced in the city are also sent to other States in the Union.

It is worth remembering that 95% of the handloom goods exported from the country are from the State of Madras and most of the leading handloom exporting houses are in the city. A decade ago, most of the countries in South East Asia, Middle East and Africa were the customers of handloom cloth. But to-day due to competition from Japan, China and Hongkong and due to the endeavour of countries in South East Asia to encourage their own handloom industry, the export to these countries from Madras has fallen. During 1953, the value of exports was in the order of Rs. 10 crores. In 1961, it fell to Rs. 3.5 Crores.

Khadi Trade

When India was under the foreign yoke, Gandhiji used the Charka as a weapon as well as a symbol of national and economic struggle against the foreigners. The Madras Government took up the Khadi Scheme with three objects, namely eradication of unemployment and under employment from the villages, supplementing the income of the agricultural villagers by spinning during leisure hours and thirdly, desiring to see that the villagers find self-sufficiency and self-

reliance in their cloth requirement, which is estimated at 15 to 16 yards per individual villager every year.

In order to offer better facilities for people to buy the Khadi produced in Government Centres, Sales Depots have been opened in all important cities and towns. The number of sales depots organised by the Department of Khadi was only 15 in the year 57-58. It has now increased to 38, out of which 6 are in Madras City and the rest are in the mofussil towns.

Apart from Sales Depots, there are other private organisations such as Madras Sarvodaya Sangh, Khadi Vastralaya, Madras-3, Khadi Gramodyog Bhavan, Madras-2, and Madras City Khadi Development Co-operative Society, Madras-1.

The per capita consumption of Khadi is very insignificant compared to the consumption of handloom and mill cloth. The sale of Khadi has shown an improved trend. The value of total sales of Khadi through these 4 agencies has increased by 23.6% during 1960-61. The sales figures for 1959-60 and 60-61 are Rs. 27,09,193.66 and Rs. 33,48,591.43 respectively. The competition from handloom and mill cloths is very severe.

Markets and Shopping Centres

George Town is the core of the City of Madras and has an extent of about 850 acres. This area is bounded by the First Line Beach Road on the East, N S.C. Bose Road and the General Hospital Road on the South, Wall Tax Road on the West and the Basin Bridge Road and Ebrahim Sahab Street on the North. This Central area of Madras City is characterised by high density of population, intensive development, mixed land uses, exhorbitant land values, narrow streets and excessive traffic, concentration of financial and banking institutions and commercial establishments, etc. The land in George Town is mostly devoted to commercial and residential uses. Most of the commercial activities of the City of Madras are concentrated in the area adjoining the First Line Beach and the China Bazaar areas. Wholesale business is centred around the China Bazaar and the Kothwal Bazaar area. Retail trade is spread along N.S.C. Bose Road, Evening Bazaar Road, Broadway, Mint Street, Wall Tax Road Etc. Service industries are spread all over, particularly along the Wall Tax Road.

Though there are several markets in Madras City for the sale of vegetables, meat, fish, eggs and condiments, the biggest of them is the "Kotwal Bazaar" (popularly known as Kothawal Chavadi) which supplies vegetables fruits and condiments to the entire city. Kotwal Chavadi is the earliest of the markets having been founded in 1782. It is a private market run by Sri Kannikaparameswari Devastanam Charities. In the early years of its inception, the 'Kotwal was the officer in charge of the markets and a Board of Police kept law and order. Later, private individuals organised markets in various parts of the city. Most of the vegetables needed for the city are brought to this centralised market, from the outlying areas as well as from long distances such as Bangalore, Ootacamund etc. and then sold to dealers in other parts of the city and also to hawkers who take them either on their hands or by means of handcarts and vend them all over the City. In fact taking advantage of the public transport facilities available at frequent intervals, dealers in the Taluks of Saidapet, Sriperumbudur, and Ponneri of Chingleput District, daily have their stocks of vegetables replenished from 'Kotwal Chavadi'.

The supplies of Potato are obtained largely from Bangalore and the Nilgiris, the daily intake being nearly a thousand bags, each of four maunds. Some seasonal supply is also received from U.P. between December and March. About 2.000 bags each of 70 kilos of onions arrive daily from Cuddappah and Bellary. Tomatoes are obtained from Dindigul, Madanapalli and Vaniyambadi to the tune of 500 baskets, each of about 500 kilos. The city also gets a large supply of 'English vegetables' mostly from Bangalore, Ootacamund and Kodaikanal. Some grown nearer Madras are also brought to the city. These include cabbage, carrot and radish.

The bulk supplier of green chillies is Nellore, while large quantities of brinjals are obtained from Vaniyambadi, Tirupalli, and Natrampalli near Jolarpet. Thanjavur, Tiruchirapalli, Madurai and Dindigul supply plantains of different varieties. The flavouring green coriander is obtained from Vellore and Bangalore, while its twin curry leaf is got from Nagari and Puttur in Chit-

toor District. The largest supply of elephantyam (Senai) comes from Malabar. Sivakasi is a close competitor. Greens are obtained mostly from the outskirts of the city and also from those parts within the city itself, where kitchen gardens are still maintained. The coconut plantations in the coastal regions, particularly in Thanjavur District in Madras State and Kerala provide the bulk of the city's supplies. Madras City receives an average daily supply of a lakh of coconuts from these centres all over the year and partly also from Arisikere in Mysore State.

As written earlier, the movement of vegetables from the Chavadi to various parts of the city is a special feature of the city and the areas to which the vegetables flow from this market daily would be an indicator for the delineation of the Metropolitan region.

Hectic activity in and around the market begins from 3 o' clock in the morning with the arrivals of vegetables. Transportation is generally by lorries that arrive with the goods by night and early morning. The peak hours are before the blink of dawn, when a continuous fleet of lorries jettison vegetables and fruits into the market. Vendors and merchants from the other parts of the city and suburban areas make purchases and take them for sale by all modes of transport including rail so that they may begin their sales by 7 A. M. to 8 A. M. The number of persons engaged in the distribution work at Kotwal Bazaar alone is nearly 3,000 counting the dealers, stall-keepers, sales-men, porters etc. Besides, quite a number of casual workers doing cooly work also figure in the daily business. At about 9 A.M. the shops and the commercial firms begin their transactions. The streets become very congested. Hooting of motor car horns, ringing of bells of cycle rickshaws and noises of other vehicular traffic rend the air. (Table V gives the daily supply of vegetables to the city from various places).

Let us now turn to the markets owned by the Corporation of Madras. Table VI gives the list of Corporation Markets in Madras City. Eight markets in the city are leased out on a monthly rental basis to individual dealers and four others to private parties on contract basis, who in their turn sublease them.

The biggest and most famous of these is the Moore Market named after Sir George Moore, a President of the Corporation who took great interest in its foundation. It is a well known centre for shopping. There are about 900 stalls in the market. The rent for a stall ranges from Rs. 7¼ to Rs. 125/- per month. The main building accommodates stalls for various commodities such as books, shoes, playthings and many other varieties of small useful goods. To the east of the main building is a supplementary structure rectangular in shape occupied by petty vendors of sundry articles. The main building is a quadrangle with stone turrets at 4 corners. The open space in the centre is laid out as a garden with arcades all round. Behind the main buildings are the fowl, mutton, beef and pork stalls built on up-to-date lines and a cold storage room.

TABLE V

Supply of Vegetables to Madras City

Name of Vegetables	Source of supply	Estimated average daily arrivals.		Season
1. Cabbage	Ooty, Bangalore, Malem in Kolar District	2500	Mds.	June, July, August, November & December
2. Knoolkhol	Ooty, Bangalore	1000	„	October, November
3. Tomatoes	Erode, Gudiyatham, Bangalore etc.			June, August
		1000	„	January, March
		1500	„	October, December

TABLE V *(Contd.)*

Supply of Vegetables to Madras City

Name of Vegetables	Source of Supply	Estimated average daily arrivals	Season
4. Beet Root	Bangalore & Ooty	500 Mds.	October, November
5. Carrot	—do—	750 ,,	November, December
6. Yam	Gudiyatham, Sivakasi, Jolarpet, Erode & Malabar	1000 ,,	October, February
7. French Beans	Gudiyatham, Bangalore, Mallur, Nilgiris	750-1000 ,,	April, October
8. Peas	Delhi	100- 150 ,,	January, March
9. Brinjal	Ambur, Vellore, Erode and Bangalore	3000 ,,	Throughout the year
10. Potatoes	Mettupalayam and Bangalore	3000 ,,	October, February
11. Onion	Dindigul, Ariyalur, Bangalore Bellary, Cudappah	1000 2000-3000 ,,	March, June August, April
12. Green chillies	Vellore, Tiruchirappalli	500 ,,	Throughout the year

Source: State Marketing Officer, Mount Road, Madras.

TABLE VI

Corporation Markets in Madras City

S. No.	Name of the Market	Nature of construction	No. of stalls
1.	Moore Market	Mangalore Tiles Madras Terrace	900
2.	Fruit Market at Esplanade	Madras Terrace	137
3.	Mallayya Market at Wall Tax Road		6
4.	Shenoy Nagar Market	Asbestos Sheets	12
5.	T. Nagar Market or Panagal	Asbestos sheeting	27
6.	Smith Field Market at Vepery		19
7.	Chetpet Dobyghana Market stalls (Old Constructions)		12
8.	—do— (New Constructions)	Madras Terrace	12
	—do— (Mc. Nichols Road)		6
9.	Razak Market at Saidapet	On contract daily collection	48
10.	Ayanavaram Market		
11.	Nadukuppam First Market (near Lloyds Road)		
12.	Nungambakkam Market		
13.	Jaganathapuram First Market (Spur Tank Road) near Panchavadi		

Besides these, there are the newly constructed rows of hawker stalls. There are also rows of shops for second hand iron goods and used clothes. The meat sold at the market are from animals tested for their health and killed in Municipal slaughter houses. Most of the fish sold at this market are from the sea caught locally as well as imported from far away places such as Cuddalore, Covelong, Pulicat, Cochin, Calicut and Cannanoore. It has almost become proverbial to say that any thing from a pin to a motor car can be got at the Moore Market. The next important one is the Fruit-cum-Flower Market situated centrally in Esplanade abutting Netaji Subash Chandra Bose Road. The main building of the market is quadrangular in shape with a tower clock over the main entrance. The stalls in front are occupied by fruit sellers and those in the rear, by flower merchants. Petty fruit vendors are provided with separate stalls on the western side of the market. Shop-keepers dealing in sundry articles occupy the other rows of stalls. A roaring trade in flowers is being carried on here and supplies come even from far away places like Tiruchirapalli and Madurai by the morning trains. This market may be said to supply flowers to the various parts of the city. There are about 137 stalls in this market. Other markets mentioned in the table are all small ones catering to the needs of the local population.

There are about 48 private markets distributed throught out the city (Table VII). Among them, the most important ones are Thannithurai market (Bhasyam Iyengar market) at Mylapore, Rajarathinam Market at Purasawalkam, Seven Wells Market, Washermanpet market, and Pattalam Market.

TABLE VII

List of Private Markets in Madras

S. No.	Divisions	Address
1	1	A. Swamy Nadar, Thandavaraya Gramani Street Market, No. 11, Thandavaraya Gramani Street.
2	2	T. Bashanayar Sabai, New Washermenpet Market, No. 322, Thiruvottiyur High Road
3	3	I. R. Chellababu Mudaliar, Kalmandapam Market No. 13/12, Kalmandapam Road
4	5	Munuswamy Chettiar, Old Washermenpet Market No. 5/6, Venkata Krishna Street
5	6	T. M. Aiyan Nadar, Narasiar Market, 82/83, Narasper Street
6	8	V. G. Theyagaraya Mudaliar, No. 16, Mannarswamykoil Street Market
7	17	Seven wells Market, 111, Govindappa Naicker Street
8	25	Kondithope Market, 32, Peddu Naicken Street
9	31	Lakshmi Market 5, Selva Vinayagarkoil Street
10	31	Erukancheri Market, 15 A, Erukancheri High Road
11	41	Jamal Mohideen Market, 115, Market Street
12	41	Balachandra Chelly Market, 49, Market Street.
13	42	Abdul Khadar Market, 17, Madavaram High Road.
14	13	Mac Donald Market, 67, Singalameer Pillai Koil St.
15	15	Mannadi Market, 89, Mannadi Street
16	15	Olakadai Market 180, Angappan Naicken Street
17	18	Chengam Bagar Market 84/85, N. P. Koil Street
18	19	Kothawal Market 1, Adiappa Naicker Street
19	34	Ottery Market 120, Strahans Road.
20	36	De-Mellows Road Market, 133, De-Mellows Road.

S. No.	Divisions	Address
21	39	Kannan Market, 37, R. R. Koil Street
22	48	Pudu Street Market, 3, Pudu Street.
23	52	Poonamallee Road Market, 68, Poonamallee High Road
24	54	Nungambakkam Market, 17, Village Road.
25	62	Purasawalkam Market, 27, Purasawalkam High Rd.,
26	62	Ellammur Devasthanam Market 9, Veeraswamy Pillai Street
27	64	Waltax Road Market, 314/3, Waltax Road.
28	65	Chintadripet Market, 17, Arunachella Naicker Street
29	67	Egmore Market 92, Egmore High Road
30	68	Connemara Market, 32, Harris Road
31	71	Shaik Adam Market 730, Triplicane High Road
32	55	Kodambakkam High Road Market 54, Kodambakkam High Road
33	57	Thousand Lights Market, 41/46, Mount Road.
34	72	Moosa Sait Market 20, Verkala Naicker Street.
35	76	New Jandah Market, 291, Triplicane High Road
36	76	Jam Bazaar Market, 429, 433, Pycrofts Road.
37	78	Dadha Rao Market, 1st Venkatachalla Mudali Street.

S. No.	Division	Address
38	78	Sulthan Market 15, Royapettah High Road
39	92	Arcot Road Market, Kodambakkam
40	81	Ageez Market, 71, MountRoad
41	81	Balasubramania Alaya Devasthanam Market, 11/A, Eldams Road, Vannia Teynampet.
42	84	Mylapore Market, 8, Bagar Road.
43	86	Mandavalli Market 65, Mandavalli Street
44	84	Thannithorai Market 75, Royapettah High Road
45	90	Masters Market 8, Lattice Bridge Rd.,
46	96	Kasi Viswanatha Temple Market, 40/4A, Eswara Koil Street.
47	98	Karaneswaran Devasthanam Market, 7, Jennis Rd. Saidapet
48	98	C.I.T. Market C.I.T. Colony

Compared to the vastness of the city, the number of private and public markets is not sufficient. For every 2 divisions there is approximately only one market.

Now coming to the shopping centres, mention may be made of the important centres like China Bazaar Road, Moore Market and Mount Road. The popular bazaars around Netaji Subash Chandra Bose Road are known as Evening Bazaar, Mat Bazaar, Rattan Bazaar and Sowcarpet. Anything, from costly diamond and gold jewellery, cloth to safety pins and toys, can be purchased from these places.

Mount Road has grown into a fashionable shopping centre. It has a historical background of more than two centuries. It was contructed

for military purposes. It runs from the Wallajah Gate, Fort St. George to St. Thomas Mount. Since then, it has undergone many changes.

Spencers are well known, catering to a wide variety of tastes and needs (including liquor to permit holders). The Victoria Technical Institute is a modern shop selling choice specimens of cottage industries and handicrafts of South India. The sales emporium of the Madras Government Industries Department and the Khadi Gramodyog Bhavan are frequently visited by lovers of handicrafts. The Kashmir Government Emporium sells Kashmir made articles from fur coats to saffron. Mount Road is also the shopping centre for sports and photographic goods. Dealers in automobiles, motor cycles and scooters have their show rooms in Mount Road. Mention may be made of M/s T.V.S. & Sons, Addisons and Reliance & Co., leading distributors of automobiles.

Small-sized shopping centres have grown in Triplicane (Pycrofts Road) Mylapore (Luz) and Theagarayanagar (Pondy Bazaar). Table VIII gives a list of shopping centres that have grown recently.

Before we conclude this chapter mention should be made of one of the leading retail agencies serving a large section of the city. The T.U.C.S. (Triplicane Urban Co-operative Society) started on 9-4-1904, extends its service to a radius of 20 miles from Fort St. George. The main aim of the society is the supply of necessaries of life to its members. It has 62 branches and 2 experimental branches situated in different parts of the city and suburbs. It has over 44,958 members and a monthly turn over of Rs. 15/- lakhs.

The Society is running an Oil Mill from 1937. There are 12 'Pinto chekkus' worked by electricity for production of gingelly oil which is supplied to the branches for sale to members. The monthly production of oil is about 3,000 tins. Gingelly seeds are purchased in bulk from different places of production. Table IX showing the average sales of the T.U.C.S. with value per month is appended.

Sales Tax is collected in pursuance of two enactments namely (1) The Madras General Sales Tax Act I of 1959 and (2) The Central Sales Tax Act–Act 74 of 1956.

The Madras General Sales Tax Act, is for the levy of tax on sales of goods within the State. Under the provisions of that Act a sale or purchase concluded within the State alone is liable to tax. The Central Sales Tax provides for the levy of tax on sales of goods in the course of inter-state trade or commerce. The administration of the Central Sales Tax Act is however vested in the Sales Tax Department of the respective States. The revenue that is derived therefrom is also appropriated by the State Government.

TABLE VIII

Shopping Centres in Madras City

1 Tiruvottiyur High Road, from Washer Buchammal Alley upto Cross Road. (By the side of new Washermenpet Market.)
2 Tiruvottiyur High Road, from Cemetry Road Cutting upto jutka street cutting.
3 Kalmandapam Road cutting in Suryanarayana Chetty Road, Around Kalmandapam market upto Hussain Maistry Street.
4 Mannarsamykoil street upto the junction of Brunction Cotton Press Road and Cemetry Road.
5 Cemetry Road - From cutting of Mannarswamykoil street upto Rama Naicken Street.
6 Mint-From Old Washermenpet Railway Gate upto Maharani Talkies.
7 Mint Street-From cutting of II Narayanan Street upto cutting of Nethaji Subas Chandrabose Road.
8 Mannady Street.
9 Wall Tax Road - From Central Railway Station to Basin Bridge Road.
10 Madavaram High Road - From cutting of paper mills Road upto Venus Talkies.
11 Market Street Perambur
12 Siruvalluvarpuram - Madhavaram High Road upto Market area.
13 Erukancheri High Road from market to outpost Police Station, Vyasarpadi.
14 Perambur High Road - Opposite to State Transport Bus Stand.
15 Pulianthope High Road from Grey Nagar to Buckingham and Carnatic Mills side.
16 Demellows Road around the Market.
17 Choolai High Road from cutting of Sydenhams Road upto Post Office.

18 Konnur High Road - From Sayani Talkies to Railway Colony.

19 Aynavaram market area.

20 Purasawalkam High Road from Director of Kelly's Law College Hostel.

21 Puraswalkam Market upto Tana Street.

22 Perambur Barracks from pumping station.

23 Aminjikarai-from Toll Gate to Lakshmi Talkies.

24 Chetpet - From Dobby ghana to Spur Tank Road cutting.

25 Nungambakkam - Village Road around the market.

26 Thousand lights around the market.

27 Royapettah-around the market and Police Station.

28 Periamet - Sydenham's Road.

29 Chintadripet-Swamy Naicken Street and Arunachala Naicken Street junction and around the market.

30 Egmore - Egmore High Road upto Gengu Reddy Road.

31 Pudupet - From Armed Police lines upto junction of Langs Garden Road.

32 Triplicane High Road - Moulana Market and Zanda Market, Pycrofts Road, Round Tana - Mount Road.

33 Luz corner in Mylapore.

34 Mandavelipakkam-around the market.

35 Adyar Guindy Road - From Besant Hotel upto Kasthuribai Nagar.

36 Kodambakkam-around the market from railway gate upto Chandrasekara Printers - from Bus Stand upto Mosque Street.

37 Thyagaraya Nagar Usman Road opposite to State Transport Bus Stand and near Panagal Park.

38 Saidapet Bazaar Road from Railway Station to Marmalong Bridge entrance and around the market.

39 Guindy, opposite to Industrial Estate.

TABLE IX

Average Purchases With Value Per Month in Triplicane Urban Co-operative Society Ltd., Madras

Commodities	Quantity	Price (Rupees)
Nellore Rice (Bags)	5,000	2,40,000
Boiled Rice („)	546	40,560
Government Gondo („)	767	29,100
Wheat Samba („)	85	6,417
Maida („)	90	3,237
Ravai („)	164	6,447
Coconut Oil (Tins)	648	31,590
Ground Nut Oil („)	1,073	30,875
Refined Oil („)	447	17,149
Gingelly Oil („)	2,188	99,833
Ghee („)	125	14,025
Toor Dholl (Bags)	568	39,100
Bengal Dholl („)	203	12,064
Black Dholl („)	356	41,250
Green Dholl („)	111	10,285
Coffee Seeds („)	362	1,26,976
Sugar („)	2,155	2,45,000
Salt („)	290	1,313
Sugar Candy (Kilos)	307	524
Sugar (C) „	2,468	1,727
Chillies „	9,146	21,100
Pepper „	1,520	5,827
Tamarind „	20,204	21,210
Almonds „	171	1,036
Nuts Pitas „	626	4,364
Jaggery „	14,048	9,976
Mundiri (Tins)	132	5,576

There are certain commodities which are exempted from the Sales Tax under Section 8 of the M. G. S. T. Act. Commodities so exempted are given in the Table X (a). Section 2-A of the Central Sales Tax Act which gives exemption to certain commodities under Central Tax Act is also appended (Vide Table X (a)).

We have collected statistics regarding the turnover for 1960-61 assessed in 1961-62 under both the Acts.

The relevant sections of both the Acts which deal with the nature of dealers and goods taxable are given in Table No. X (b) and (c).

Four Tables have been prepared. (Vide Table X (d), (e) (f) and XI). Tables X d, e

and concern the State Sales Tax and Table XI the Central Sales Tax.

Table X (D) deals with goods declared by the State Government as taxable commodities (i. e.) commodities taxable under Sub-Section 2 of Section 3 of the M. G. S. T. Act. Table X (E) deals with goods taxable under Section 4 of the M. G. S. T. Act. Table X (F) deals with goods which are not covered by Tables (D) & X (E) and which are not exempted from tax under Section 8 of the M. G. S. T. Act (i.e.) commodities taxable under Sub-Section (1) of Section 3.

Table XI gives the taxable turnover under the Central Sales Tax Act. These are sales effected to persons outside Madras State and refers to all movements of goods from Madras State to another State. Sale by transfer of documents also comes within the scope of inter state sale.

The Tables include entries relating to some commodities which are at present exempt from tax under the provisions of the Act. The exemptions were being granted from time to time.

Tables X (a)

GOODS EXEMPTED FROM TAX BY SECTION-8

(Description of goods)

1. Motor spirit as defined in the Madras Sales of Motor Spirit Taxation Act, 1939 (Madras Act VI of 1939)
2. Tobacco and its products—(13-12-1957)
3. Any good on which duty is levied or leviable under the Madras Prohibition Act, 1937 (Madras Act X of 1937) or the Opium Act, 1878 (Central Act I of 1878) on the entire quantity of such goods and not merely on any ingredient which forms part of such goods.
4. All varieties of Textiles (other than durries, carpets, druggets and pure silk cloth) made wholly or partly of cotton, staple, fibre, rayon, artificial silk or wool including handkerchiefs, towels, knapkins, dusters, cotton velvets and velvetteen, tapes, niwars and laces and hosiery cloth in lengths—(13-12-1957)
5. Sugar including jaggery and gur—(13-12-1957)
6. Handspun yarn
7. Handloom cloth.

Commodities exempted from tax under the Central Act

If the commodity is exempted under the Madras Law, then there will be no tax on it in respect of inter-State transaction. Section 24 Notwithstanding anything contained in Sub-section (1) or sub-section (2), if under the sales tax Law of the appropriate State the sale or purchase, as the case may be, of any goods by a dealer is exempt from tax generally or is subject to tax generally at a rate which is lower than one per cent (whether called a tax or fee or by any other name), the tax payable under this Act on his turnover or any part thereof relates to the sale of such goods shall be NIL or, as the case may be shall be calculated at the lower rate. Explanation:—For the purposes of this sub-section a sale or purchase of goods shall not be deemed to be exempt from tax generally under the sales tax law of the appropriate State if under that law it is exempt only in specified circumstances or under specified conditions or in relation to which the tax is levied at specified stages or other-wise than with reference to the turnover of the goods.

Table X (b)

M. G. S. TAX

Section 3 M. G. S. TAX Levy of taxes on sales or purchases of goods.

(1) Every dealer (other than a casual trader or agent of a non-resident dealer) whose total turnover for a year is not less than ten thousand rupeees and every casual trader or agent of non-resident dealer, whatever be his turnover for the year, shall pay a tax for each year at the rate of two per cent of his taxable turnover.

provided that.

(i) In the case of foodgrains namely wheat, paddy (rice in husk), rice (husked paddy), Chola, cumbu, ragi, thinai, varagu, sami and kudiraivali and in the case of rice products (for example, rice flour and rice bran), wheat products for example, wheat, flour, sooji and wheat bran), milk, fresh

vegetables other than those mentioned in the first schedule) fresh fruits, betal and plantain leaves, flowers, eggs, meat and fish (other than canned meat fish) the small rate shall be one per cent.

(ii) dealers dealing exclusively in one or more of the goods enumerated in the foregoing clause except foodgrains, rice products, wheat products and milk and whose total turnover for a year is not more than thirty thousand rupees shall be liable to pay tax under this Sub-Section.

(2) Notwithstanding anything contained in sub-section (1) in the case of goods mentioned in the first schedule the Tax under this Act shall be payable by a dealer at the rate and only at the point specified therein on the turnover in each year relating to such goods whatever be the quantum of turnover in that year.

(3) Notwithstanding anything contained in Sub-Section (1) or Sub-Section (2) the tax payable by a dealer in respect of any sale of goods mentioned in the First Schedule by sub-dealer to another for use by the latter as component part of any other goods mentioned in that schedule, which he intends to manufacture for sale inside the State, shall be at the rate of only one percent on the turnover relating to such sale.

Provided that provisions of this Sub-Section shall not apply to any sale unless the dealer selling the goods furnishes to the assessing authority in the prescribed manner a declaration duly filled in and signed by the dealer to whom the goods are sold containing the prescribed particulars in a prescribed form obtained from the prescribed authority.

4. Tax in respect of declared goods:- Notwithstanding anything contained in Section 3, the tax under this Act shall be payable by a dealer on the sale or purchase inside the State of declared goods at the rate and only at the point specified against each in Second Schedule on the turnover in such goods in each year, whatever be the quantum of turnover in that year. Provided that where a tax has been levied under this Section in respect of sale or purchase of declared goods and such goods are sold in the course of inter-State trade on commerce the tax so levied shall be refunded to such person in such manner and subject to such conditions as may be prescribed.

Table X (c)

THE CENTRAL SALES TAX ACT, 1956

(Act 74 of 1956)

A "dealer" means any person who carries on the business of (buying or selling goods) and includes a Government which carries on such business.

When is a sale or purchase of goods said to take place in the course of inter-State trade or Commerce.

Section 3. A sale or purchase of goods shall be deemed to take place in the course of inter-State trade or commerce if the sale or purchaes.

(a) Occasions the movement of goods from one State to another; or

(b) is effected by a transfer of documents of title to the goods during their movement from one State to another.

Explanation:-1. Where goods are delivered to a carrier or other bailee for transmission, the movement of the goods shall, for the purposes of clause (b), be deemed to commence at the time of such delivery and terminate at the time when delivery is taken from such carrier or bailee.

Explanation:-2. Where the movement of goods commences and terminates in the same State it shall not be deemed to be a movement of goods for one State to another by reason merely of the fact that in the course of such movement the goods pass through the territory of any other State.

When is a sale or purchase of goods said to take place outside a State.

Section 4. (1) Subject to the provisions contained in Section 3, when a sale or purchase of goods is determined in accordance with Sub-Section (2, to take place inside a State) Such sale or purchase shall be deemed to have taken place outside all other States.

(2) A sale or purchase of goods shall be deemed to take place inside a State if the goods are within the State:-

(a) in the case of specific or ascertained goods, at the time the contract of sale is made; and

(b) in the case of unascertained or future goods, at the time of their appropriation to the contract of sale by the seller or by

the buyer, whether assent of the other party is prior or subsequent to such appropriation.

Explanation:- Where there is a single contract of sale or purchase of goods situated at more places than one, the provisions of this Sub-Section shall apply as if there were separate contracts in respect of the goods at each of such places.

When is a sale or purchase of goods said to take place in the course of import or export.

5. (1) A sale or purchase of goods shall be deemed to take place in the course of the export of the goods out of territory of India only if the sale or purchase either occasions such export or is effected by a transfer of documents of title to the goods have crossed the customs frontiers of India.

(2) A sale or purchase of goods shall be deemed to take place in the course of the import of the goods into the territory of India only if the sale or purchase either occasions such import or is effect by a transfer of documents of title to the goods before the goods have crossed the customs frontiers of India.

Liability to tax on inter-State sales.

6.1 (1) Subject to the other provisions contained in this Act, every dealer shall, with effect from such date as the Central Government may, by notification in the Official Gazette, appoint, not being earlier than thirty days from the date of such notification, be liable to pay tax under this Act on all sales effected by him in the course of inter-State trade or commerce during any year on and from the date so notified.

1: S.6 renumbered sub-section (1) of that section by Act 31 of 1958, s 3 (w.e) f.1.10. 1958)

2. Notwithstanding anything contained in Sub-Section (1), where a sale in the course of inter-State trade or commerce of goods of the description referred to in sub-section (3) of section.

(a) has occasioned the movement of such goods from one State to another; or

(b) has been effected by a transfer of documents of title to such goods during their movement from one State to another.

Any subsequent sale to a registered dealer during such movement effected by a transfer of documents of title to such goods shall not be subject to tax under this Act:- Provided that no such subsequent sale shall be accept from the under this Sub-Section unless the dealer effecting the sale furnishes to Tax prescribed authority in the prescribed manner a certificate duly filled and signed by the Registered dealer from whom the goods were purchased, containing the prescribed particulars.

7· (1) Every dealer liable to pay tax under this Act, shall, within such time as may be prescribed for the purpose, make an application for registration under this Act to such authority in the appropriate State as the Central Government may, by general or special order, specify, and every such application shall contain such particulars as may be prescribed.

(2) Any dealer liable to pay tax under the sales tax law of the appropriate State, or any part thereof, any dealer having a place of business in that State or part, as the case may be notwithstanding that he is not liable to pay tax under this Act, apply for registration under-this Act to the authority referred to in sub-section (1), and every such application shall contain such particulars as may be prescribed.

Explanation:-For the purposes of this Sub-Section, a dealer shall be deemed to be liable to pay tax under the sales tax law of the appropriate State notwithstanding that under such law a sale or purchase made by him is exempt from tax or a refund or rebate of tax is admissible in respect thereof.

(3) If the authority to whom an application under sub-section (1) or Sub Section (2) is made is satisfied that the application is in conformity with the provisions of this Act and the rules made thereunder, he shall register the applicant and grant to him a certificate of registration in the prescribed form which shall specify the class or classes of goods for the purposes of Sub-Section (1) of Section 8 Section 2 (4) A certificate of registration granted under this section may:-

(4) either on the application of the dealer to whom it has been granted, or where no such application has been made, after

2. Subs. by Act 31 of 1958, s, 4 for the original Sub-Section (2) (w.e.f. 1-10-1958)

due notice to the dealer, be amended by the authority granting it if he is satisfied that by reason of the registered dealer having changed the name, place or nature of his business or the class or classes of goods in which he carries on business of for any other reason the certificate of registration granted to him requires to be amended: or

(b) be cancelled by the authority granting it where he is satisfied, after due notice to the dealer to whom it has been granted, that he has ceased to carry on business or has ceased to exist, or in the case of a dealer registered under sub-section (2) has ceased to be liable to pay tax under the sales taxes law of the appropriate State or for any other sufficient reason.

(5) A registered dealer may apply in the prescribed manner not later than six months before the end of a year to the authority which granted his certificates of registration for the cancellation of such registration, and the authority shall, unless the dealer is liable to pay tax under this Act, cancel the registration accordingly, and where he does so, the cancellation of such shall be take effect from the end of the year.

8.1 (1) Every dealer, who in the course of inter-State trade or commerce-

(a) Sells to the Government any goods; or

(b) Sells to a registered dealer other than the Government goods of the description referred to in Sub-Section (3);

shall be liable to pay tax under this Act, which shall be one per cent of his turnover.

(2) The tax payable by any dealer on his turnover in so far as the turnover or any part thereof relates to the sale of goods in the course of inter-State trade or commerce not falling within Sub-Section (1)—

(a) in the case of declared goods, shall be calculated at the rate applicable to the sale or purchase of such goods

(b) in the case of goods other than declared goods, shall calculated at the rate of seven percent, or at the rate applicable to the sale or purchase of such goods inside the appropriate State, whichever is higher:

and for the purpose of making any such calculation any such dealer shall be deemed to be a dealer liable to pay tax under the sales tax law of the approrpiate State, not withstanding that he, in fact, may not be so liable under that law.

(2) Not withstanding anything contained in sub-section (1) or sub-section (2), if under the sales tax law of the appropriate State the sale or purchase, as the case may be, of any goods by a dealer is exempt from tax generally or is subject to tax generally at a rate which is lower than one per cent (whether called a tax or fee or by any other name), the tax payable under this Act on his turnover in so far the turnover or any part thereof relates to the sale of such goods shall be NIL or, as the case may be, shall be calculated at the lower rate. Explanation :- For the purposes of this Sub-Section a sale or purchase of goods shall not be deemed to be exempt from tax generally under the sales tax law of the appropriate State if under that law it is exempt only in specified circumstances or under specified conditions or in relation to which the tax is levied at specified stages or otherwise then with reference to the turnover of the goods.

(3) The goods referred to in clause (b) of Sub-Section (1)—

(a) in the case of declared goods or goods of the class or classes specified in the certificate of registration of the registered dealer purchasing the goods as being intended for *re-sale* by him.

(b) in the case of goods other than declared goods are goods of the class or classes specified in the certificate of registration of the registered dealer purchasing the goods as being intended for re-sale by him or subject to any rules made by the Central Government in this behalf, for use by him in the manufacture or processing of goods for sale or in mining or in the generation or distribution of electricity or any other form of power;

(c) are containers or other materials specified in the certificate of registration of the registered dealer purchasing the goods, being containers or materials intended for

---

2. Subs by Act S, 4, for the orginial Sub-Section (4) (w.e.f. 1-10-1958)

1. Subs. by Act. 31 of 1958, s, 5, for the original Sub-Section (1) to (1) w. e. f. 1-10-58

being used for the packing of goods for sale:

(d) are containers or other materials used for the packing of any goods or classes of goods specified in the certificate of registration referred to in clause (a) or clause (b) or for the packing of any containers or other materials specified in the certificate of registration referred to in clause (c).

(4) The provisions of sub-section (1) shall not apply to any sale in the course of inter-State trade or commerce unless the dealer selling the goods furnishes to the prescribed authority in the prescribed manner—

(a) a declaration duly filled and signed by the registered dealer to whom the goods are sold containing the prescibed particulars in a prescribed form obtained from the prescribed authority; or

(b) if the goods are sold to the Government, not being a registered dealer, a certificate in the prescribed form duly filled and signed by a duly authorised officer of the Government.

(5) Notwithstanding anything contained in this section, [1] (the State Government) may, if it is satisfied that it is necessary so to do in the public interest, by notification in the Official Gazette, direct that in respect of such goods or classes of goods as may be mentioned in the notification and subject to such conditions as it may think fit to impose, no tax under this Act, shall be payable by any dealer having his place of business in[2] (the State) in respect of the sale by him from any such place of business of any such goods in the course of inter-State trade or commerce or that the tax on such sales shall be calculated at such lower rates than those specified in sub-section (1) or sub-section (2) as may be mentioned in the notification.

"Declared goods" means goods declared under section 14 to be of special importance in inter-State trade or commerce.

1. Subs. by Act 16 of 1957, s, 2, for "the Central Government"

2. Subs. by Act 16 of 1957, s, 2 for any "Union territory"

Table X (d)

Table showing the number of dealers and turn over assessed in various commodities in Madras City during 1961-62 under MGST Act of 1961-62

FIRST SCHEDULE

Sl. No.	*Name of Commodity*	*Dealers assessed*	*Turnover assessed (in rupees)*
1.	Building materials	14	9,27,037.73
2.	Chemicals	384	3,40,21,714.67
3.	Confection	80	92,63,935.92
4.	Electrical goods	384	3,67,07,117.93
5.	Engineering other than Ele. and transport	31	11,51,101.69
6.	Food articles and provisions	224	2,25,76,619.85
7.	Glass industry	135	85,06,635.53
8.	Iron and steel	58	18,66,100.96
9.	Leather and Leather products	75	15,22,209.48
10.	Machinery	809	5,19,25,704.97
11.	Pen and pencil making	12	6,84,729.73
12.	Precesion instrument	15	3,88,731.68
13.	Products of Petroleum	12	85,674.37
14.	Textiles	36	46,52,880.05
15.	Tobacco	....	....
16.	Transport equipment	241	1,13,32,535.52
17.	Vegetable oil and products	50	1,98,51,793.14
18.	Wood and Timber	138	1,48,50,141.11
19.	Others	599	4,01,98,689.87
		3,297	26,05,47,354.20

Table X (e)

Table showing the number of dealers and turnover assessed in various commodities in Madras city during 1961-62 under MGST Act of 1956

Sl. No.	Name of commodity	Dealers assessed	Turnover assessed (Rupees)
1.	Coal including coke	13	21,64,038.53
2.	Cotton and cotton yarn	45	3,39,33,807.70
3.	Iron and steel	150	6,89,68,612.19
4.	Jute	3	27,39,295.22
5.	Oil seeds	127	1,19,99,077.25
6.	Hides and skins	91	3,11,81, 955.34
	TOTAL	429	15,09,86,786.23

Table X (f)

Table showing the number of dealers and turnover assessed in various commodities in Madras City during 1961-62 under MGST Act of 1956

MULTI POINT

Sl. No.	Name of commodity	Dealers assessed	Turnover assessed (Rupees)
1.	Building materials	15	27,69,120.87
2.	Chemicals	251	5,25,60,402.59
3.	Food articles	1,872	18,31,04,138.80
4.	Glass	43	20,93,905.47
5.	Iron and steel	16	1,35,82,848.20
6.	Leather and Leather products	25	8,24,332.92
7.	Machinery	233	71,28,624.52
8.	Precesion instrument	14	6,22,082.37
9.	Products of petroleum	6	6,15,20,595.70
10.	Textiles	282	1,11,48,476.83
11.	Tobacco	2	12,84,528.50
12.	Wood and timber	580	2,34,80,172.77
13.	Others	3,057	17,31,75,368.35
	TOTAL	6,396	53,32,94,597.89

Table XI

Table showing the number of dealers and turnover assessed in various commodities in Madras City during 1961-62 under CST Act of 1956

Sl. No.	Name of commodity	Dealers assessed	Turnover assessed (Rupees)
1.	Building materials	7	2,47,692.72
2.	Chemicals	296	2,28,48,852.31
3.	Confectionary	14	65,60,899.96
4.	Electrical goods	195	1,24,77,143.80
5.	Engineering other than Ele. and transport	45	43,96,242.39
6.	Food articles and provisions	183	3,95,22,931.72
7.	Glass industry	108	29,76,947.24
8.	Iron and steel	134	51,80,616.21
9.	Leather and Leather products	126	59,14,073.67
10.	Machinery	419	5,44,90,750.09
11.	Pen and pencial making	16	4,03,520.94
12.	Precesion instrument	42	38,87,709.06
13.	Products of petroleum	3	3,38,625.69
14.	Textiles	85	2,27,59,477.63
15.	Tobacco	11	3,80,030.06
16.	Transport equipment	239	6,38,58,080.87
17.	Vegetable oil and products	21	90,66,925.51
18.	Wood and timber	60	20,87,319.20
19.	Others	1,035	6,79,90,737.56
	Total	3,039	32,53,88,576.73

For example exemption was granted to tobacco, textiles and sugar including jaggery with effect from 13-12-1957. Cases pertaining to the period prior to the date of grant of exemption which have been subsequently disposed of during the year 1961-62 would find a place in the Table.

Again the provisions of the Central Sales Tax Act are in addition to the provisions of the M. G. S. T. Act. In respect of goods taxable at single point under the M. G. S. T. Act not only the single point tax under that Act can be levied but the inter-state tax under the Central Sales Tax also could be levied. The same is the position in respect of goods taxable on purchases under the M. G. S. T. Act. Not only the purchase tax under the M. G. S. T. Act can be levied but inter state tax on the same goods when the same is sold to a non-resident buyer may also be levied.

However it should be remembered that only one tax can be levied on a single transaction. In the case of declared goods the party selling to a non-resident buyer is entitled to claim the refund of M. G. S. T. Tax.

At the time of collection of these statistics we were informed that there were quite a few cases which were pending settlement. There were 494 cases pending settlement under M. G. S. T. Act. The assessable turnover for these cases, amounts to Rs. 673.3 millions. The corresponding figures for Central Sales Tax Act are given below:

Pending Cases 497

Turnover involved Rs. 351.6 millions

Let us now analyse the Tables (X D to F and XI). These Tables contain statistics pertaining to settled cases. Commodity wise

break up for pending cases are not available.

The total taxable turnover under M. G. S. T. Act for the year 1960-61 assessed in 1961-62 was of the order Rs. 944.8 millions. The following statement will indicate the value and per centage of turnover of some of the important commodities.

	Commodity	*Turnover value in Rs.*	%
1.	Food Articles	205.7 millions	21.76
2.	Chemicals	86.6 ,,	9.16
3.	Iron & Steel	70.8 ,,	7.50
4.	Machinery	59.1 ,,	6.25
5.	Textiles	49.7 ,,	5.26
6.	Wood & Timber	38.3 ,,	4.06

It can be seen that (1) food articles, (2) Chemicals, (3) Iron and Steel and (4) Machinery have contributed nearly 40% of the total.

The taxable turnover during 1960-61 and assessed in 1961-62 under Central Sales Tax Act was of the order Rs. 325.4 millions. The following statement gives the breakup for some important commodities.

	Commodity	*Turnover value in Rs.*	%
1.	Transport	63.9 millions	19.63
2.	Machinery	54.5 ,,	16.75
3.	Food Articles	39.5 ,,	12.15
4.	Chemicals	22.8 ,,	7 02
5.	Textiles	22.7 ,,	6.99
6.	Electrical Goods	12.5 ,,	3.83

Transport accounts for nearly one fifth of the total. Machinery, Food articles and Chemicals have contributed about 35%.

Madras City Supplies Machinery, Transport equipment and Electrical goods to outside States. In turn it gets iron and steel, coal and coke.

Industrial Classification of Workers In Premier Cities in India

It will be interesting to know the distribution of workers in the nine industrial categories employed in 1961 Census in the premier cities of our country. Comparative figures are exhibited in Table XII - A:

TABLE XII - A

Workers in Madras City and other Premier Cities in Indian Union Classified by Industrial Categories

Category	Madras City Total	%	Males	%	Females	%	Bombay Total	%	Males	%	Females	%
1	2	3	4	5	6	7	8	9	10	11	12	13
I Cultivator	104	0.02	102	0.02	2	0.004	4840	0.28	2944	0.19	1896	1.30
II Agricultural Labourer	193	0.04	181	0.04	12	0.023	1949	0.11	1156	0.08	793	0.54
III Mining and Quarrying	7165	1.35	6906	1.45	259	0.499	25131	1.49	22316	1.45	2815	1.93
IV Household Industry	13103	2.49	9082	1.91	4021	7.747	23042	1.36	16435	1.07	6607	4.53
V Manufacturing	128991	24.48	125539	26.43	3452	6.651	665530	39.49	632130	41.02	33400	22.91
VI Construction	22498	4.27	20797	4.38	1701	3.277	44906	2.66	40223	2.61	4683	3.21
VII Trade and Commerce	100814	19.13	94863	19.97	5951	11.465	303817	18.01	286669	18.60	17148	11.76
VIII Transport and Communication	62301	11.82	60632	12.76	1669	3.215	189260	11.22	180315	11.70	8945	6.14
IX Other Services	191812	36.40	156974	33.04	34838	67.119	428193	25.38	358673	23.28	69520	47.68
Total	526981	100	475076	100	51905	100	1686668	100	1540861	100	145807	100

TABLE XII - A (Contd.)

Workers in Madras City and Other Premier Cities in Indian Union Classified by Industrial Categories

Category	Calcutta Total	%	Males	%	Females	%	Delhi Total	%	Males	%	Females	%
	14	15	16	17	18	19	20	21	22	23	24	25
I Cultivator	76	0.01	76	0.01	...	...	5178	0.70	3862	0.55	1316	2.86
II Agricultural Labourer	88	0.01	86	0.01	2	...	1242	0.17	915	0.14	327	0.72
III Mining and Quarrying	3052	0.26	2987	0.27	65	0.10	5446	0.74	4618	0.66	828	1.78
IV House-hold Industry	8948	0.76	8228	0.74	720	1.06	12684	1.70	10057	1.43	2627	5.72
V Manufacturing	298303	25.22	293034	26.28	5269	7.79	155099	20.76	151887	21.67	3212	6.98
VI Construction	37803	3.19	37351	3.35	452	0.67	32540	4.35	30264	4.31	2276	4 95
VII Trade and Commerce	282567	23.89	278333	24.95	4234	6.26	143809	19.25	141924	20.25	1885	4.09
VIII Transport and Communication	138184	11.68	136158	12.21	2026	2.99	47387	6.34	46538	6.64	849	1.85
IX Other Services	413768	34.98	358879	32.18	54889	81.13	343430	45.99	310742	44.35	32688	71.05
Total	1182789	100	1115132	100	67657	100	746815	100	700807	100	46008	100

An abstract is given below:-

Workers in Madras City and other premier cities in Indian Union classified by certain Industrial categories.

	Madras	Bombay	Calcutta	Delhi
Manufacturing	24.48	39.53	25.22	20.76
Trade & Commerce	19.13	18.04	23.89	19.25
Transport and Communication	11.82	11.24	11.68	6.34
Construction	4.27	2.67	3.19	4.35
Other Services	36.40	25.43	34.98	45.99
Household Industry	2.49	1.37	0.76	1.70

The category, 'Other Services' offers the greatest employment potential in Madras City as well as in the cities of Calcutta and Delhi. In Bombay city alone 'Manufacturing' tops the list. This is proof of the fact that Bombay is much more advanced industrially than the other premier cities.

Taking up other categories we find that nearly ¼th of the workers i.e. 24.5% in Madras City are employed in 'Manufacturing' and 1/5th or 19.13 % in 'Trade and Commerce'. The next important industry is 'Transport and Communications'. Madras ranks first in this category.

As a Trade and Commerce Centre, Madras takes the third rank, the first and second places being held by Calcutta and Delhi respectively.

It may be seen that the four major industrial categories which provide bulk of employment are (1) Manufacturing (2) Trade and Commerce (3) Transport and Communications and (4) Other Services. The distribution of male workers in the above four categories is in the same order as that of the total workers.

Taking female workers we find that the categories (1) Other Services (2) Trade and Commerce (3) Household Industry and (4) Manufacturing offer better scope for employment than

the rest of the categories. It is significant that 'Other Services' accommodates 67% of women workers. In 'Trade and Commerce' 11.5% of female workers are employed as against 20% of male workers. Bombay City more or less maintains the same ratio as Madras City. In Calcutta and Delhi the disparity between the sexes is very great in 'Trade and Commerce'. As against 25% of male workers, there are only 6% of female workers in Calcutta City. In Delhi as against 20% of male workers, there are only 6% of female workers in Calcutta City. In Delhi as against 20% male workers, there are 4% of female workers in trade and Commerce. This shows that in the cities of Madras and Bombay women take more kindly to 'Trade and Commerce'.

Industrial Classification of Workers in Important Cities in Madras State.

We may proceed to compare the workers in Madras City with a few other important cities in Madras State. The other cities selected for the purpose are Coimbatore, Madurai and Tiruchirapalli. Table XII-B facilitates the comparison. In all the cities except Coimbatore, the category 'Other Services' offers the maximum employment potential. In Coimbatore 'Manufacturing' holds the field. Coimbatore is very much more advanced industrially and is known as the 'Manchestor of the South'. Next to 'Other Services' comes 'Manufacturing', then 'Trade and Commerce' and so on.

TABLE XII - B

Workers in Madras City and Other Important Cities in Madras State Classified by Industrial Categories

Category	Madras City						Coimbatore					
	Total	%	Males	%	Females	%	Total	%	Males	%	Females	%
1	2	3	4	5	6	7	8	9	10	11	12	13
I Cultivator	104	0.02	102	0.02	2	0.004	334	0.34	301	0.36	33	0.22
II Agricultural Labourer	193	0.04	181	0.04	12	0.023	1212	1.23	745	0.90	467	3.11
III Mining and Quarrying	7165	1.35	6906	1.45	259	0.499	1183	1.20	1031	1.24	152	1.02
IV House-hold Industry	13103	2.49	9082	1.91	4021	7.747	7078	7.21	5377	6.46	1701	11.32
V Manufacturing	128991	24.43	125539	26.43	3452	6.651	29576	30.12	26713	32.11	2863	19.06
VI Construction	22493	4.27	20797	4.38	1701	3.277	5092	5.18	3736	4.49	1356	9.02
VII Trade and Commerce	100814	19.13	94863	19.97	5951	11.465	19035	19.38	17541	21.09	1494	9.94
VIII Transport and Communication	62301	11.82	60632	12.76	1669	3.215	5818	5.92	5629	6.76	189	1.25
IX Other Services	191812	36.40	156974	33.04	34838	67.119	28901	29.42	22131	26.59	6770	45.06
Total	526981	100.00	475076	100.00	51905	100.00	98229	100.00	83204	100.00	15025	100.00

TABLE XII - B (Contd.)

Workers in Madras City and Other Important Cities in Madras State Classified by Industrial Categories

Category	Madurai						Tiruchirapalli					
	Total	%	Males	%	Females	%	Total	%	Males	%	Females	%
	14	15	16	17	18	19	20	21	22	23	24	25
I Cultivator	574	0.44	524	0.48	50	0.24	700	0.90	615	0.91	85	0.86
II Agricultural Labourer	523	0.39	375	0.34	148	0.72	1389	1.88	829	1.23	560	5.66
III Mining and Quarrying	919	0.70	834	0.76	85	0.42	1189	1.53	1011	1.50	178	1.80
IV House-hold Industry	16295	12.48	10745	9.77	5550	26.99	5484	7.10	3834	5.70	1650	16.67
V Manufacturing	37752	28.91	33232	30.20	4520	21.99	19566	25.35	18417	27.39	1149	11.61
VI Construction	3966	3.04	3285	2.98	681	3.31	3118	4.04	2620	3.89	498	5.03
VII Trade and Commerce	27424	21.00	25165	22.87	2259	10.98	16185	20.97	15172	22.56	1013	10.23
VIII Transport and Communication	10057	7.71	9837	8.94	220	1.09	9046	11.71	8826	13.13	220	2.22
IX Other Services	33077	25.33	26034	23.66	7043	34.26	20467	26.52	15922	23.69	4545	45.92
Total	130587	100.00	110031	100.00	20556	100.00	77144	100.00	67246	100.00	9898	100.00

In 'Trade and Commerce', Madurai leads and Tiruchirapalli comes a close second, Coimbatore a close third and Madras last. The percentages in all the four cities range between 19.13 and 21.00. Taking the gentle sex the ranking gets altered. Madras City has the first place with 11.5%. Next comes Madurai, then Tiruchirapalli and last Coimbatore.

Workers by Educational Levels (Table XIII)

The percentage of literacy of workers employed in all the industrial categories in the city is 74.5 as against 82.5% in 'Trade and Commerce'. It is evident that 'Trade and Commerce' requires a working knowledge of the three R's. The percentages of workers engaged in 'Trade and Commerce' who are University Degree Holders, Matriculates and less than Matriculates are higher than the corresponding percentages for all the industrial categories put together. People possessing technical qualifications are comparatively less employed in 'Trade and Commerce' than in all the industrial categories put together.

TABLE XIII

Workers in all industrial categories and workers in Trade & Commerce Classified by educational levels

Educational levels	Workers in all industrial categories						Workers in Trade & Commerce						% of Col.
	Persons	%	Males	%	Females	%	Persons	%	Males	%	Females	%	8 to Col. 2
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Illiterate	1,34,117	25.45	1,05,271	22.16	28,846	55.57	17,688	17.55	13,157	13.87	4,531	76.14	13.19
Literate (without educational standard)	1,23,141	23.37	1,17,982	24.83	5,159	9.94	2,55,57	25.35	25,107	26.47	450	7,56	20.75
Primary or Junior basic	1,45,259	27.56	1,38,331	29.12	6,928	13.35	29,697	29.47	29,342	30.93	355	5.97	20.44
Matriculation or higher secondary	94,867	18.00	86,319	18.16	8,548	16.47	22,572	22.38	22,064	23.26	508	8.53	23.79
Technical Diploma not equal to Degree	3,105	0.59	2,987	0.64	118	0.23	243	0.25	241	0.25	2	0.03	7.82
Non-Technical Diploma not equal to degree	438	0.08	405	0.09	33	0.06	53	0.05	53	0.06	...	...	12.10
University Degree or Post graduate Degree other than Technical Degree	21,154	4.01	19,968	4.20	1,186	2.28	4,782	4.75	4,681	4.93	101	1.70	22.61
Technical Degree or Diploma equal to degree or Post-Graduate Degree													
Engineering	1,781	0.35	1,773	0.37	8	0.02	149	0.14	149	0.16	...	...	8.36
Medicine	1,329	0.25	937	0.19	392	0.76	15	0.01	15	0.02	...	...	1.12
Agriculture	104	0.02	101	0.02	3	0.01	14	0.01	14	0.02	..	...	14.42
Veterinary and Dairying	90	0.02	90	0.02	...	...	6	0.01	6	...	...	...	6.67
Technology	77	0.01	77	0.02	...	...	12	0.01	12	0.01	...	...	15.58
Teaching	1,503	0.29	819	0.18	684	1.31	23	0.02	19	0.02	4	0.07	1.53
Others	16	...	16	...	...	...	3	...	...	...	...	...	18.75
Total	5,26,981	100.00	4,75,076	100.00	51,905	100.00	1,00,814	100.00	94,863	...	5,951	100.00	19.1

Analysing the over-all position we find that more than ¾ths of the workers engaged in 'Trade and Commerce' are Matriculates and less than Matriculates.

Taking the fair sex we notice a great divergence. 76% of women employed in 'Trade and Commerce' are illiterates as against the corresponding percentage of 14% for the male section.

Workers by Age Groups

It may be interesting to institute a comparison between 'Trade and Commerce' on the one hand and all the categories put together on the other. Table XIV serves the purpose.

TABLE XIV

Workers in all industrial categories and 'Trade and Commerce' in Madras City. Classified by sex and broad age-groups.

	Workers in all categories						Workers in Trade & Commerce						
Age-group	Total	%	Males	%	Females	%	Total	%	Males	%	Females	%	% of Col. 8 to Col. 2
1	2	3	4	5	6	7	8	9	10	11	12	13	14
0–14	8,871	1.68	7,073	1.49	1,798	3.46	1,179	1.18	1,148	1.21	31	0.53	13.29
15-34	2,80,174	53.16	2,53,837	53.43	26,337	50.74	50,657	50.24	48,530	51.16	2,127	35.74	18.08
35-59	2,20,726	41.89	1,99,123	41.91	21,603	41.62	44,512	44.15	41,171	43.40	3,341	56.14	19.37
60+	17,167	3.26	15,004	3.16	2,163	4.17	4,461	4.43	4,009	4.22	452	7.59	25.98
Age not stated	43	0.01	39	0.01	4	0 01	5	...	5	0.01	...	...	11.62
Total	5,26,981	100.00	4,75,076	100.00	51,905	100.00	1,00,814	100,00	94,863	100.00	5,951	100.00	19.13

The age-groups 15-34 and 35-59 account for 94% of the workers employed in 'Trade and Commerce'. Out of every 11 workers in the age group 15-34 in all the industrial categories, two employee are in Trade and Commerce. One out of every five workers in the age group 35-59 in all the categories is engaged in 'Trade and Commerce'. Child employment is not only insignificant in 'Trade and Commerce' but also comparatively less in proportion than in all the other categories put together. Another significant feature which emerges is that 'Trade and Commerce' offers better scope for employment of people aged 60 and above.

A comparison of women workers in 'Trade and Commerce' with those of all industrial categories indicates that a relatively low percentage of women in the age groups 0–14 and 15–34 take to 'Trade and Commerce'. But the proportion is higher in the age-groups 35–59 and 60+. Perhaps young women do not prefer 'Trade and Commerce.'

We have attempted a correlation between wholesale trade and retail trade by minor groups in Table XV. There are 30 minor groups under wholesale trade and 34 under retail trade. Necessarily a few minor groups in the retail trade have to be combined to find fitting counterparts in the whole-sale trade. The figures are self-explanatory.

TABLE XV

Correlation Between Wholesale and Retail Trade by Minor Groups

Industrial Code (Minor Group No.)	Description of wholesale trade	No. of persons engaged	Corresponding details for retail trade: Industrial Code No.	Description	No. of persons engaged
1	2	3	4	5	6
	Wholesale Trade			*Retail trade*	
600	Wholesale trading in cereals and pulses	700	640	Retail trading in cereals, pulses, vegetables, fruits, sugar, spices oil, fish, dairy products, eggs, poultry	21022
601	Wholesale trading in vegetables, fruits, sugar, spices, oil, fish, dairy products, eggs, poultry and other food stuff (not covered elsewhere)	1562	646	Retail trading in foodstuffs like sweetmeat condiment, cakes, biscuits, etc.	2529
602	Wholesale trading in all kinds of fabrics and textiles products such as garments, persian, gunnybag, silk and wollen yarn, shirtings, suitings, hoisery products.	1615	650	Retail trading in fibres yarns dhoti, saree, ready made garments of cotton, wool, silk and other textiles and hoisery products (this Includes retail trading in piece-goods of cotton, wool, silk and other textiles)	7124
603	Wholesale trading in beverages, such as tea (leaf) coffee (seed and powder) aerated water.	381	641	Retail trading in beverages such as tea (leaf) coffee (seed and powder) aerated water.	889
604	Wholesale trading in intoxicants such as wines, liquors	11	642	Retail trading in intoxicants such as wines, liquors	69
605	Wholesale trading in other intoxicants such as opium, ganja etc	2	643	Retail trading in other intoxicants such as opium, ganja etc.	36
606	Wholesale trading in tobacco, bidi cigarettes and other tobacco products	239	644	Retail trading in tobacco, bidi. cigarettes and other tobacco products	1068
607	Wholesale trading in Animals	30	647	Retail trading in Animals	127
608	Wholesale trading in straw and fodder	27	648	Retail trading in straw and fodder	192
610	Wholesale trading in medicines and chemicals	560	652	Retail trading in medicines and chemicals	1940
611	Wholesale trading in fuel and lighting products such as coke, coal, kerosene, candle.	141	645	Retail trading in fuel such as coke, coal, firewood and kerosene	2443
612	Wholesale trading in toilets perfumery and cosmetics	90	651	Retail trading in toilet goods, perfumes and cosmetics	513

TABLE XV (Contd.)

Correlation Between Wholesale and Retail Trade by Minor Groups

Industrial Code (Minor Group No.)	Description of wholesale trade	No. of persons engaged	Industrial Code No.	Corresponding details for retail trade — Description	No. of persons engaged
1	2	3	4	5	6
613	Wholesale trading in metal, porcelain and glass utensils, crockery, chinaware	208	662	Retail trading in metal, porcelain and glass utensils	1742
614	Wholesale trading in wooden, steel and other metallic furniture and fittings.	99	660	Retail trading in wooden, steel and other metallic furniture and fittings	195
615	Wholesale trading in Footwear	9	653	Retail trading in Foot-wear, head-gear such as hat, umbrella, shoes and chappals	301
616	Wholesale trading in tyres-tubes and allied rubber products.	71	654	Retail trading in tyres, tubes and allied rubber products	96
617	Wholesale trading in petrol, mobile oil and allied products	2347	655	Retail trading in Petrol, Mobile oil and allied products	332
618	Wholesale trading in other household equipment not covered above	12	664	Retail trading in other household equipment not covered above	41
620	Wholesale trading in bricks, tiles and other building materials	165	670	Retail trading in bricks, tiles and other building materials	192
			673	Retail trading in other building materials	192
621	Wholesale trading in wood, bamboo, cane, thatches and similar products	254	672	Retail trading in wood, bamboo, cane bag and thatches	840
630	Wholesale trading in paper and other stationery goods	402	661	Retail trading in stationery goods and paper	1029
631	Wholesale trading in agricultural and industrial machinery equipment and tools and appliances other than electrical	120	680	Retail trading in agricultural and industrial machinery equipment tools and appliances	227
632	Wholesale trading in electrical machinery and equipment like motor, Battery, electric fan, bulb.	495	682	Retail trading in electrical goods like electric fan, bulb etc.	1169
633	Wholesale trading in all kinds of transport and storage equipment.	483	681	Retail trading in transport and storage equipments	1105
634	Wholesale trading in skins, leather and fur	605	683	Retail trading in skins, leather and furs and their products excluding footwear and headgear.	1008
635	Wholesale trading in clocks eyeglasses, frames	39	684	Retail trading in clock and watch eyeglass and frame	396

TABLE XV (Contd.)

Correlation Between Wholesale and Retail Trade by Minor Groups

Industrial Code (Minor Group No.)	Description of wholesale trade	No. of persons engaged	Industrial Code No.	Corresponding details for retail trade Description	No. of persons engaged
1	2	3	4	5	6
636	Wholesale trading in hardware and sanitary equipment	1113	671	Retail trading in hardware and sanitary equipment	1583
637	Wholesale trading in scientific medical and surgical instruments	51	685	Retail trading in scientific medical and surgical instruments	178
638	Wholesale trading in precious metals and stones, gold and silverwares and jewellery	244	686	Retail trading in precious, stones and jewellery.	1185
639	Wholesale trading in all goods not covered above	1091	689	Retail trading in goods unspecified	12659
			663	Retail trading in earthernware and earthern toys	99
			687	Retail trading in musical instruments, gramaphone record, pictures and paintings including curio dealing	434
			688	Book-selling	664

We have also attempted to study the size of the wholesale and retail trade by adopting a common grouping principle leaving out 'Trade and Commerce Miscellaneous'. Table XVI serves the purpose. Taking all the groups together we notice that the number of persons engaged in retail trade is roughly about 5 times than engaged in wholesale trade. Except in the group 'Trading in petrol, mobile oil and allied products', in all other groups persons in retail trade outnumber those in wholesale trade. The gap is the widest in the group 'Foot wear, hat, umbrella etc.' and the narrowest in the group 'Hardware and sanitary equipment'.

TABLE XVI

Size of Wholesale and retail Trade in Terms of the Number of Persons Under Various Categories

S. No.	Description of trade	No. of persons in the trade				
		Both whole sale & retail	Wholesale		Retail	
			Abstract figure	%	Abstract figure	%
1	2	3	4	5	6	7
1.	Wholesale & retail trading in foodstuffs	25,813	2,262	8.76	23,551	91.24
2.	Wholesale & retail trading in Textiles (cotton, silk etc.)	8,739	1,615	18.48	7,124	81.52
3.	Wholesale & Retail Trading in beverages such as tea, coffee, aerated water	1,270	381	30.00	889	70.00
4.	Wholesale & Retail trading in intoxicants such as wines, liquors	80	11	13.75	69	86.25
5.	Wholesale & retail trading in other intoxicants such as opium ganja etc.	38	2	5.26	36	94.74
6.	Wholesale & retail trading in tobacco and tobacco products	1,307	239	18.29	1,068	81.71
7.	Wholesale & Retail trading in Animals	157	30	19.11	127	80.89
8.	Wholesale & Retail trading in straw and Fodder	219	27	12.33	192	87.67
9.	Wholesale & Retail trading in medicines and chemicals	2,500	560	22.40	1,940	77.60
10.	Wholesale & Retail trading in fuel such as coal, coke, Firewood, Kerosene etc.	2,584	141	5.46	2,443	94.54
11.	Wholesale and retail trading in toilets and cosmetics	603	90	14.93	513	85.07
12.	Trading in metal, porcelain, glass utensils	1,950	208	10.67	1,742	89.33
13.	Trading in wooden, steel and other metallic furnitures	294	99	33.67	195	66.33
14.	Trading in Footwear, umbrella etc.	310	9	2.90	301	97.10
15.	Trading in tyres, tubes and allied rubber products	167	71	42.51	96	57.49
16.	Trading in petrol, mobile oil and allied products	2,679	2,347	87.61	332	12.39
17.	Trading in household equipment not covered above	53	12	22.64	41	77.36

TABLE XVI (Contd.)

Size of Wholesale and retail Trade in Terms of the Number of Persons Under Various Categories

S. No.	Description of trade	Both whole sale & retail	No. of persons in the trade			
			Wholesale		Retail	
			Abstract figure	%	Abstract figure	%
1	2	3	4	5	6	7
18.	Trading in building materials such as bricks bamboo, thatches, tiles etc.	1,543	419	27.15	1,124	72.85
19.	Trading in paper and other stationery goods	1,431	402	28.09	1,029	71.91
20.	Trading in agricultural and Industrial machinery other than electrical	347	120	34.58	227	65.42
21.	Trading in electrical machinery and equipment like motor fan etc.	1,664	495	29.75	1,169	70.25
22.	Trading in all kinds of transport and storage equipment	1,588	483	30.41	1,105	69.59
23.	Trading in skins, leather and fur	1,613	605	37.51	1,008	62.49
24.	Trading in clocks, eye-glass, frames	435	39	9.00	396	91.00
25.	Trading in hardware and sanitary equipment	2,696	1,113	41.28	1,583	58.72
26.	Trading in scientific medical and surgical instruments	229	51	22.27	178	77.73
27.	Trading in precious metal, stones and gold silver jewellery	1,429	244	17.07	1,185	82.93
28.	Trading in goods unspecified	14,947	1,091	7.30	13,856	92.70
	Total	76,685	13,166	17.17	63,519	82.83

We have prepared two tables (Nos. XVII, XVIII) giving the industrial classification by sex of workers in 'Trade and Commerce' arranged in a descending order. In 'wholesale trade' minor group 617 tops the list. Next comes 602, then 601 and so on. The percentages range between 0.02 to 17.83.

Taking each sex separately we find that the pride of place goes to the self-same group 617. The order for the male sex determines that for both the sexes put together. Taking the gentle sex, we notice that the order changes. Higher proportions of women are employed under codes 617, 600 and 601. This may be due to the reason that these classes of trade offer larger scope for employment of women, or in the alternative women by aptitude prefer them.

In 'retail trade' minor group 640 tops the list. Next comes 650. These two minor groups together with minor group 689 'Retail trading in goods unspecified' account for 64.25% of the total workers. The percentages range between 0.06 and 33.10.

TABLE XVII

Industrial Classification of Workers in Trade and Commerce with sex break up for Wholesale and Retail Trade and Trade and Commerce Miscellaneous

(Arranged in descending order of the size of trade)

Industrial Code (Minor group)	Description of trade	Persons		Males		Females	
		Abstract figure	%	Abstract figure	%	Abstract figure	%
1	2	3	4	5	6	7	8
617	Wholesale trading in petrol Mobile oil and allied products	2,347	17.83	2,309	17.84	38	17.12
602	Wholesale trading in all kinds of fabrics and textiles products such as garments, gunny bag, silk and woollen yarn, suitings shirtings hoisery products	1,615	12.27	1,598	12.35	17	7.66
601	Wholesale Trading in Vegetables, fruits, sugar, spices, oil, fish dairy products, eggs, poultry and other food stuff (not covered elsewhere)	1,562	11.86	1,533	11.84	29	13.06
636	Wholesale Trading in hardware and sanitary equipment	1,113	8.45	1,102	8.51	11	4.96
600	Wholesale trading in cereals and pulses	700	5.32	666	5.15	34	15.32
634	Wholesale Trading in skins leather and Fur	605	4.59	602	4.65	3	1.35
610	Wholesale Trading in medicines and chemicals	560	4.25	546	4.22	14	6.31
632	Wholesale Trading in electrical machinery and equipment like motor, battery, electric fan, built	495	3.76	488	3.77	7	3.15
633	Wholesale Trading in all kinds of Transport and Storage equipment	483	3.67	477	3.69	6	2.70
630	Wholesale Trading in paper and other stationery goods	402	3.05	386	2.98	16	7.21
603	Wholesale Trading in beverages such as Tea (leaf) coffee (Seeds and Powder) aerated water	381	2.89	379	2.93	2	0.90
621	Wholesale Trading in wood, Bamboo, Cane, Thatches and similar products	254	1.93	253	1.95	1	0.45
638	Wholesale Trading in precious metals and stones, gold and silver wares and Jewellery	244	1.85	244	1.88	...	...
606	Wholesale Trading in tobacco bidi, cigarettes and other tobacco products	239	1.82	236	1.82	3	1.35
613	Wholesale Trading in metal, porcelain and glass utensils crockery, chinaware	208	1.58	207	1.60	1	0.45
620	Wholesale Trading in bricks, tiles and other building materials	165	1.25	163	1.26	2	0.90

TABLE XVII (Contd.)

Industrial Classification of Workers in Trade and Commerce with sex break up for Wholesale and Retail Trade and Trade and Comerce Miscellaneous

(Arranged is descending order of the size of trade)

Industrial Code (Minor group)	Description of trade	Persons		Males		Females	
		Abstract figure	%	Abstract figure	%	Abstract figure	%
1	2	3	4	5	6	7	8
611	Wholesale Trading in fuel and lighting products such as coke, coal, kerosene, candle	141	1.07	137	1.06	4	1.80
631	Wholesale Trading in agricultural and industrial machinery equipment and tools and appliances other than electrical	120	0.91	118	0.91	2	0.90
614	Wholesale Trading in wooden, steel and other metallic furniture and fittings	99	0.75	99	0.76	...	...
612	Wholesale trading in toilets perfumery and cosmetics	90	0,68	88	0.68	2	0.90
616	Wholesale Trading in tyres, tubes and allied rubber products	71	0.54	71	0.55	...	...
637	Wholesale Trading in Scientific, medical and surgical instruments	51	0.39	48	0.37	3	1.35
635	Wholesale Trading in clocks, eye-glass, frames	39	0.30	39	0.30	...	...
607	Wholesale Trading in Animals	30	0·23	30	0.23	...	...
608	Wholesale Trading in Straw and Fodder	27	0.21	27	0.21	...	...
618	Wholesale Trading in other household equipment not covered above	12	0.09	10	0.08	2	0.90
604	Wholesale Trading in intoxicants such as wines, liquors	11	0.08	11	0.08	...	...
615	Wholesale Trading in foot-wear	9	0.07	9	0.07	...	...
605	Wholesale Trading in other intoxicants such as opium, ganja etc.	2	0.02	2	0.02	...	...
639	Wholesale Trading in all goods not covered above	1,091	8.29	1,066	8.24	25	11.26
	Total	13,166	100.00	12,944	100.00	222	100.00

TABLE XVIII

Retail Trade

Industrial Code (Minor group)	Description of trade	Persons		Males		Females	
		Abstract figure	%	Abstract figure	%	Abstract figure	%
1	2	3	4	5	6	7	8
640	Retail Trading in Cereals, Pulses, Vegetables, fruits, sugar, spices, oil fish, dairy products, eggs, poultry	21022	33.10	18107	31.01	2915	56.77
650	Retail Trading in fibres, yarns, dhoti, saree readymade garments of cotton, wool, silk and other textiles and hoisery products (this includes retail trading in piece-goods of cotton, wool, silk and other textiles)	7124	11.22	7031	12.04	93	1.81
646	Retail trading in Foodstuffs like sweet neat condiment, cakes, biscuits etc.	2529	3.98	1716	2.94	813	15.83
645	Retail Trading in fuel such as coke, coal, firewood and kerosene.	2443	3.85	2288	3.92	155	3.02
652	Retail Trading in medicines and chemicals	1940	3.05	1896	3.25	44	0.86
662	Retail trading in metal, porcelain and glass utensils	1742	2.74	1724	2.95	18	0.35
671	Retail trading in hardware and sanitary equipment	1583	2.49	1575	2.70	8	0.16
686	Retail trading in precious stones and jewellery	1185	1.87	1180	2.02	5	0.10
682	Retail trading in electrical goods like electric fan, bulb etc.	1169	1.84	1156	1.98	13	0.25
681	Retail trading in transport and storage equipments	1105	1.74	1094	1.87	11	0.21
644	Retail trading in tobacco, bidi, cigarattes and other tobacco products.	1068	1.68	1053	1.80	15	0.29
661	Retail trading in stationery goods and paper	1029	1.62	1017	1.74	12	0.23
683	Retail trading in skins, leather and furs and their products footwear and headgear	1008	1.59	1003	1.72	5	0.10
641	Retail Trading in beverages such as tea (leaf), coffee (seed and powder) aerated water.	889	1.40	877	1.50	12	0.23
672	Retail Trading in wood, bamboo, cane bark and thatches.	840	1.32	825	1.41	15	0.29
688	Book-selling	664	1.05	653	1.12	11	0.21
651	Retail Trading in toilet goods, perfumes and cosmetics	513	0.81	505	0.87	8	0.16

TABLE XVIII (Contd.)

Retail Trade

Industrial Code (Minor group)	Description of trade	Persons		Males		Females	
		Abstract figure	%	Abstract figure	%	Abstract figure	%
1	2	3	4	5	6	7	8
687	Retail Trading in musical instruments, gramaphone record, pictures and paintings including curio dealing.	434	0.68	424	0.73	10	0.19
684	Retail Trading in clock and watch, eye glass and frame	396	0.62	388	0.67	8	0.16
655	Retail Trading in Petrol, mobile oil and allied products.	332	0.52	329	0.56	3	0.06
653	Retail Trading in Footwear, headgear such as hat, umbrella, shoes and chappals	301	0.47	297	0.51	4	0.08
680	Retail Trading in Agricultural and industrial machinery equipment, tools and appliances.	227	0.36	220	0.38	7	0.14
660	Retail Trading in wooden, steel and other metallic furniture and fittings.	195	0.31	193	0.33	2	0.04
670	Retail Trading in bricks, tiles and other building materials.	192	0.30	183	0.31	9	0.17
648	Retail Trading in Straw and Fodder	192	0.30	160	0.27	32	0.62
685	Retail Trading in Scientific, medical and surgial instruments	178	0.28	175	0.30	3	0.06
647	Retail Trading in Animals	127	0.20	126	0.22	1	0.02
663	Retail Trading in earthernware and earthern toys	99	0.16	59	0.10	40	0.78
654	Retail Trading in tyres, tubes and allied rubber products	96	0.15	94	0.16	2	0.04
673	Retail Trading in other building materials	92	0.14	87	0.15	5	0.10
642	Retail Trading in Intoxicants such as wines, liquors	69	0.11	24	0.04	45	0.88
664	Retail Trading in other household equipment not covered above	41	0.06	39	0.07	2	0.04
643	Retail Trading in other intoxicants such as opium ganja etc.	36	0.06	36	0.06	...	...
689	Retail Trading in goods unspecified	12659	19.93	11850	20.30	809	15.75
	Total	63519	100.00	58384	100.00	5135	100.00

MISCELLANEOUS

695	Banking and similar type of financial operation	6276	26.01	6158	26.17	118	19.86
693	Providents and Insurances	2929	12.14	2821	11.99	108	18.18
690	Importing and Exporting of goods and commodities	2092	8.67	2053	8.72	39	6.57
694	Moneylending (Indigenous)	1609	6.67	1594	6.77	15	2.52
697	Distribution of motion pictures	408	1.69	407	1.73	1	0.17
691	Real estate and properties	234	0.97	232	0.99	2	0.34
692	Stocks, shares and futures	110	0.46	108	0.46	2	0.34
696	Auctioneering	61	0.25	60	0.25	1	0.17
699	All other activities connected with trade and commerce not covered above, including hiring out of durable goods such as electric fan, microphone rickshaw etc.	10410	43.14	10102	42.92	308	51.85
	Total	24129	100.00	23535	100.00	594	100.00
	Grand Total	100814	...	94863	...	5951	...

Trade and Commerce Miscellaneous

Category	Description	Worker
690	Importing and Exporting of goods and commodities	2092
691	Real Estate and Properties	234
692	Stocks, shares and future	110
693	Providents and Insurances	2929
694	Money lending (Indigenous)	1609
695	Banking and similar type of financial operation	6276
696	Auctioneering	61
697	Distribution of motion pictures	408
699	All other activities connected with trade and commerce not covered above, including hiring out of durable goods such as electric fan, microphone, rickshaw etc.	10410
		24129

Taking each sex separately we find that the self-same group 640 occupies the first place. The order for the male sex follows that for both the sexes put together save for 646. Taking the fair sex we notice that minor groups 640 and 646 together with 689, 'Retail trading in goods unspecified' account for 88.35% of the total workers.

Analysing the sex ratio we find that only under 663— 'Retail trading in earthenware and earthentoys' and under 646— 'Retail trading in foodstuffs like sweet-meat, condiment, cakes, biscuits etc', there are 40 women as against 59 men and 813 women as against 1716 men respectively (i.e.) about ¾ ths and half the number of men. In all other minor groups the gap is very wide.

Coming to 'Trade & Commerce Miscellaneous' we find that 'Banking' offers considerable scope for employment. Barring the miscellaneous minor group 699, it provides employment for slightly less than half the remaining workers.

In the Census of 1961 the workers were divided into four classes viz. (1) employer (2) employee (3) Single worker (4) family worker.

An employer is a person who hires one or more persons in his work. An employee is a person who usually works under others for salary or wages in cash or kind. A single worker is a person who does his work without employing others. A family worker is a person who does his work in his own family without wages or salary in cash or kind.

We have analysed the census figures for Madras City from this angle in Table XIX. The percentages are as follows:—

	All the industrial categories	*Trade and Commerce*
Employer	68.03	58.19
Single workers	26.41	25.32
Employees	4.82	14.81
Family worker	0.74	1.68

There is a higher proportion of employers and family workers in 'Trade and Commerce' than in all the categories put together. Perhaps there is more number of petty proprietors in 'Trade and Commerce' than in other categories.

The order applicable to both the sexes in all the industrial categories put together is true of either sex. In 'Trade and Commerce' we find that the order for the male sex determines that for both the sexes put together. Taking the gentle sex we find that the order undergoes a change. Single-workers top the list followed by employees. Single-workers constitute 62% and are a little more than double the number of the employees. Among women engaged in retail trade single-workers constitute 70%. This is a very striking feature and speaks to the fact that more women engage themselves in petty trade.

In the Census of 1961, for occupational classification, we have used the National Classification of Occupations evolved by the Directorate General of Employment and Training, Ministry of Labour and Employment, Government of India. Based on this, we have attempted an occupational classification of the workers engaged in 'Trade and Commerce'. The Code structure contains as many as 331 occupational families (three-digit code nos) which are quite numerous and so we have clubbed certain families in which the figures are not considerable Tables XX A, B, C and D prepared accordingly show the occupational classification.

The figures speak for themselves. The occupational division 'Sales workers' accounts for nearly 56% of the workers engaged in 'Trade and Commerce'. Next comes the occuptional division 'Clerical and related workers' with 25%. The third place is taken by the occupational division 7-8, 'Craftsmen, Production Process Workers and Labourers not elsewhere classified'. The figures reflect quite a normal trend. Among men 'Clerical workers' are a little less than half the 'Sales workers'. But among women 'Clerical workers' constitute a much smaller proportion. They are a little less that 1/8th of the 'Sales workers'. It is significant that 73.23% of women are 'Sales workers'. Apparently lack of education has acted as a barrage against women entering the clerical cadre.

TABLE XIX

Workers in all Categories and Trade and Commerce Classified by sex and Class of Work

	Total Workers			Employer						Employee (Cont.)			
	Persons	Males	Females	Persons	% of Col. 5 to 2	Males	% of Col. 7 to 3	Females	% of Col. 9 to 4	Persons	% of Col. 11 to 2	Males	% of Col. 13 to 3
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. All categories	513,581	465,711	47,870	24,732	4.82	24,130	5.18	602	1.26	349,377	68.03	318,886	68.47
2. Trade & Commerce	100,814	94,863	5,951	14,935	14.81	14,596	15.39	339	5.70	58,666	58.19	56,849	59.93
2.A Wholesale Trade	13,166	12,944	222	2,255	17.13	2,233	17,25	22	9.91	9.126	69.31	8,974	69.33
2.B Retail Trade	63,519	58,384	5,135	11,058	17.41	10,765	18.44	293	5.71	29.318	46.16	28,180	48.27
2.C Trade & Commerce Miscellaneous	24,129	23,535	594	1,622	6.72	1,598	6.79	24	4.36	20,222	83.31	19,695	83.68

TABLE XIX (Contd.)

Workers in all Categories and Trade and Commerce Classified by sex and Class of Work

	Single worker								Family worker					
	Females	% of Col. 15 to 4	Persons	% of Col. 17 to 2	Males	% of Col. 19 to 3	Females	% of Col. 21 to 4	Persons	% of Col. 23 to 2	Males	% of Col. 25 to 3	Females	% of Col. 27 to 4
	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1. All categories	30,491	63.70	135,627	26.41	119,434	25.65	16,193	33.83	3,845	0.74	3,261	0.70	584	1.21
2. Trade & Commerce	1,817	30.53	25,518	25.32	21,831	23.01	3,687	61.96	1,695	1.68	1,587	1.67	108	1.81
2.A Wholesale Trade	152	68.47	1,553	11.80	1,516	11.71	37	16.67	232	1.76	221	1.71	11	4.95
2.B Retail Trade	1,138	22.16	21,855	34.41	18,246	31.25	3,609	70.28	1,288	2.02	1,193	2.04	95	1,85
2.C Trade & Commerce Miscellaneous	527	88.71	2,110	8.74	2,069	8.79	41	6.90	175	0.73	173	0.74	2	0.03

TABLE XX-A

Workers in 'Trade and Commerce' by types of occupations

S. No.	Description	Persons	%	Males	%	Females	%	Occupational families in which the figures are considerable
1	2	3	4	5	6	7	8	9
	O Professional, Technical and Related Workers	1,358	1.35	1,343	1.42	15	0,25	
1	Electrical Engineers	116	0.12	116	0.12	...	...	
2	Pharmacists and Pharmaceutical Technicians	145	0.14	142	0.15	3	0.05	
3	Accountants and Auditors	610	0.61	606	0.64	4	0.06	
4	Rest	487	0.48	479	0.5	8	0.13	
	1 Administrative, Executive and Managerial Workers	2,946	2.92	2,886	3.04	60	1.01	
5	Directors and Managers, Wholesale Trade	799	0.79	765	0.81	34	0.57	
6	Directors and Managers, Retail Trade	1,356	1.35	1,342	1.41	14	0.24	
7	Directors, Managers and Working Proprietors, Banks	444	0.44	439	0.46	5	0.08	
8	Directors, Managers and Working Proprietors, Insurance	222	0.22	220	0.23	2	0.03	
9	Rest	125	0.12	120	0.13	5	0.08	
	2 Clerical and Related Workers	25,623	25.42	25,047	26.4	576	9.68	
10	Book-Keepers, Book-Keeping and Accounts clerks	2,581	2.56	2,564	2.7	17	0.29	
11	Cashiers	824	0.82	823	0.87	1	0.02	
12	Stenographers	930	0.92	715	0.75	215	3.61	
13	Typists and Tele-typists	929	0.92	822	0.87	107	1.8	
14	Clerks, Ministerial Assistants and related workers	16,872	16.74	16,652	17.55	220	3.7	
15	Unskilled Office workers	3,397	3 37	3,388	3.57	9	0.15	
16	Rest	90	0.09	83	0.09	7	0.12	
	3 Sales Workers	56,404	55.95	52,046	54,86	4,358	73.23	

TABLE XX-A (Contd.)

Workers in 'Trade and Commerce' by types of occupations

S. No.	Description	Persons	%	Males	%	Females	%	Occupational families in which the figures are considerable
1	2	3	4	5	6	7	8	9
17	Working proprietors, wholesale trade	2,569	2.55	2,551	2.69	18	0,3	
18	Working proprietors, Retail trade	27,556	27.33	25,395	26.77	2,161	36.31	2,407 2,380 27
19	Agents and salesmen, Insurance	358	0.36	340	0.36	18	0.3	2.39 2.51 0.45
20	Agents, Brokers and Salesmen Real Estates	158	0.16	158	0.17	...	...	
21	Brokers and Agents, Securities and shares	91	0.09	91	0.1	...	...	310 to 319 to be grouped
22	Insurance and real estate salesmen, salesmen of securities and services and auctioneers	1,800	1.79	1,791	1.89	9	0.02	
23	Commercial travellors	512	0.51	510	0.54	2		1455 1481 0.4
24	Manufacturers' Agent	830	0.82	828	0.87	2	0.003	1.44 1.53 0.06
25	Commercial Travellors and Manufacture Agents	113	0.11	113	0.12	...	...	can be grouped
26	Salesmen, shop assistants and related workers	12,532	12.43	12,341	13.01	191	3.21	
27	Howkers, Pedlars and Street Vendors	8,661	8.59	6,718	7.08	1,943	32.65	
28	Money-lenders (including Indigenous Bankers)	479	0.48	471	0.5	8	0.13	
29	Pawn-Brokers	721	0.72	715	0.75	6	0.1	
30	Rest	24	0.02	24	0.03	...	...	
	4 Farmers, Fishermen, Hunters, loggers and related workers	1,103	1.09	1,062	1.12	41	0.69	
31	Farm workers, Animals, Birds and insects rearing	490	0.49	490	0.52	...	...	
32	Log fallers and wood cutters	525	0.52	521	0.55	4	0.06	
33	Rest	88	0.09	51	0.05	37	0.62	
	5. Miners, Quarrymen and related workers	...	...	...	...	...	...	
	6. Workers in Transport and Communication	1,091	1.08	1,040	1.1	51	0.86	

TABLE XX-A (Contd.)

Workers in 'Trade and Commerce' by types of occupations

S. No.	Discription	Persons	%	Sales	%	Femaies	%	Occupational families in which the figures are considerable
1	2	3	4	5	6	7	8	9
34	Motor vehicle and motor cycle drivers	630	0.62	630	0.66	...	...	
35	Drivers, Road transport others (642–649)	260	0.26	259	0.27	1	0.002	
36	Telephone Operators	105	0.1	55	0.06	50	0.84	
37	Messengers	94	0.09	94	0.1	...	...	
38	Rest	69	0.07	69	0.07	...	...	
	7-8 Craftsmen, Prodcution process workers, and labourers not elsewhere classified.	10,760	10.67	10.01	10.56	745	12.52	
39	Tailors and Dress makers	112	0.11	91	0.1	21	0.35	
40	Leather cutters, lasters, severs and related workers	116	0.12	113	0.12	3	0.05	
41	Fitter-Machinists	182	0.18	182	0.19	...	...	
42	Machine tool operators	157	0.16	157	0.18	...	...	
43	Machine repairmen	514	0.51	514	0.54	...	...	
44	Sheet metal workers	103	0.1	103	0.11	...	...	
45	to Electricians and related electrical workers	755	0.75	755	0.8	...	...	
46	Carpenters (Wood)	206	0.2	206	0.22	...	...	
47	Painters and paper hangers	228	0.23	228	0.24	...	...	
48	Millers, Bakers and related food and beverage workers	1,393	1.38	993	1.05	400	6.72	Bakers 411 297 114 Butchers 525 459 66
49	Craftsman and Productions process workers	130	0.13	109	0.11	21	0.35	
50	Checkers, Testers, Sorters, Weighers and counters	258	0.26	255	0.27	3	0.05	
51	Packers, Labellers and related workers	638	0.63	622	0.66	16	0.17	
52	Labourers	4,841	4.8	4,582	4.83	259	4.35	
	Rest	1,127	1.12	1,105	1.16	22	0.37	

TABLE XX-A (Contd.)

Workers in 'Trade and Commerce' by types of occupations

S No.	Description	Persons	%	Males	%	Females	%	Occupational families in which the figures are considerable
1	2	3	4	5	6	7	8	9
	9. Service, sport and recreation workers	1,298	1.29	1,196	1.26	102	1.71	
53	Watchmen and Chowkidars	781	0.74	779	0.82	2	0.003	
54	Cook and cook bearers	108	0.11	105	0.11	3	0.003	
55	Cleaners, Sweepers and Waterman	348	0.35	255	0.27	93	1.56	
	Rest	61	0.06	57	0.06	4	0.06	
	X Workers not classifiable by occupation.	231	0.23	228	0.24	3	0.05	
56	Workers reporting occupations unidentifiable or unclassifiable	209	0.21	206	0.22	3	0.05	
57	Rest	22	0.22	22	0.02	...	...	

TABLE XX-B

Workers Engaged in 'Trade and Commerce' by Sex and Occupational Divisions

Division	Description	Persons	%	Males	%	Females	%
0	Professional, Technical and related worker	1,358	1.35	1,343	1.42	15	.25
1	Administrative, Executive and Managerial workers	2,946	2.92	2,886	3.04	60	1.01
2	Clerical and related workers	25,623	25.42	25,047	26.44	576	9.68
3	Sales workers	56,404	55.95	52,046	54.96	4,358	73.23
4	Farmers, Fishermen, Hunters Loggers and related workers	1,103	1.09	1,062	1.12	41	0.69
5	Miners, Quarrymen and related workers	...	...	...	...	...	...
6	Workers in Transport and communication occupations	1,091	1.08	1,040	1.1	51	0.86
7-8	Craftsmen, production process workers, and labourers not elsewhere classified.	10,760	10.67	10,015	10.56	745	12.52
9	Service, Sports and Recreation workers	1,298	1.29	1,196	1.26	102	1.71
10	Workers not classifiable by occupation	231	0.23	228	0.24	3	0.05
		100,814	100.00	94,863	100.00	5,951	100.00

TABLE XX-C

Workers in 'Trade and Commerce' classified by principal occupational groups

MALES

S. No.	Occupational groups	Males	%
1	Working proprietors, Retail trade	25,395	26.77
2	Clerical workers, Miscellaneous	16,652	17.55
3	Salesmen, Shop Assistants and related workers	12,341	13.01
4	Hawkers, Pedlars and street vendors	6,718	7.08
5	Labourers	4,582	4.83
6	Unskilled office workers	3,388	3.57
7	Book-keepers, Book-keeping and Accounts Clerks	2,564	2.7
8	Working proprietors, wholesale trade	2,551	2.69
9	Insurance and real estate salesmen, salesmen of securities and services, and Auctioneers	2,380	2.51
10	Commercial travellors and Manufacturers' Agents Directors and Managers, Retail trade	1,451	1.53
11	Directors and Managers, Retail trade	1,342	1.41
12	Millers, Bakers, Brewmasters and related food and Beverage workers	993	1.05
13	Cashiers	823	0.87
14	Typists and Tele-typists	822	0.87
15	Watchmen and Chokidars	779	0.82
16	Directors and Managers, Wholesale trade	765	0.81
17	Electricians and related electrical workers	755	0.8
18	Stenographers	715	0.75
19	Motor vehicle and motor cycle drivers	630	0.66
20	Packers, Labellers and related workers	622	0.66
21	Accountants and Auditors	606	0.64
22	Log fellers and wood cutters	521	0.55
23	Machine repairmen	514	0.54
24	Others	6,954	7.33
	Total	94,863	100.00

TABLE XX - D

Workers in 'Trade and Commerce' classified by principal occupational groups

FEMALES

S. No.	Occupational groups	Females	%
1	Working proprietors, Retail trade	2,161	36.31
2	Hawkers, Pedlars and street vendors	1,943	32.65
3	Millers, Bakers and related food and Beverage workers	400	6.72
4	Labourers	259	4.35
5	Clerks, Ministerial Assistants and related workers	220	3.7
6	Stenographers	215	3.61
7	Salesmen, Shop-Assistants and related workers	191	3.21
8	Typists and Tele-typists	107	1.8
9	Cleaners, Sweepers and Water carriers	93	1.56
10	Telephones Operator	50	0.84
11	Others	312	5.25
	Total	5,951	100.00

Among men we have at the top of the list 'Working proprietors - Retail trade" followed immediately by 'Clerical workers, miscellaneous', next by 'Sales-men and shop assistants", then by "Hawkers, Pedlars and Street-vendors" and so on. Among women also 'Working proprietors retail trade' occupy the first place, followed immediately by 'Hawkers, Pedlars and Street Vendors', then by 'Millers, Bakers and Related Food and Beverage Workers'. It is significant that among women the occupational families 'working proprietors Retail trade' and 'Hawkers, Pedlars and Street Vendors' account for nearly 69%.

The chapter on "Trade and Commerce" will be incomplete without a reference to the Chambers of Commerce. There are six such Chambers in the City.

1. The Madras Chamber of Commerce

The East India Co., lost their trade monopoly with Europe in 1813, but they continued to trade with India for another twenty years.

By the Chapter of 1833, however, they emerged as a governing body pure and simple and the trade of the country was, for the first time in nearly 200 years, thrown open, without Government competition to those who had previously been known as the free merchants.

Ere long it dawned on the commercial firms of the City that to benefit fully from these changed circumstances it would be advisable to form associations which could speak with one accord of the merchants on any matter bearing on trade and commerce of the country.

Accordingly on the 29th September 1836, a meeting of the merchants of Madras was held at the Office of M/s. Binny & Co., Madras when it was unanimously resolved.

"That an Association be formed in Madras under the designation of the Madras Chamber of Commerce".

The Chamber's objects are to watch over and protect the interests of trade; to receive and collect information on matters of mercantile interest bearing upon the removal of grievances

and promotion of the common good; to communicate with authorities and with individual parties thereupon; to receive references on matters of custom or usage in doubt or dispute, deciding on the same and recording the decision made for future reference and to form by that and other means a code of practice whereby the transactions of business by all engaged in it may be simplified and facilitated.

The Chamber has to-day over 98 members most of them being Westerners and is represented on a number of public bodies.

Immediately after its formation it established contact with the Bengal Chamber of Commerce and the Bombay Chamber of Commerce, both of which had come into existence by them.

The Chamber celebrated its centenary in 1936.

2. The Southern India Chamber of Commerce

The Chamber started its career in October, 1909 with a hundred members. Its incorporation was an act of faith on the part of the founders who realised that while the European Commercial Community had an organisation to influence policy, the Indian Commercial Community lacked the power and the instrument to express its views. The Chamber is the oldest Indian Chamber in Madras State and the second oldest in the country.

The membership of the Chamber is open to all members of the business and industrial community, as well as Banks and Insurance Companies. The Chamber moved into its new premises in Esplanade in 1956.

Right from the beginning, the Chamber gathered momentum and secured a wide influence and many firms as well as individuals came to rely on it as a mirror of public opinion and instrument of economic progress.

The Chamber is represented on various public bodies the chief among them being,

1. Madras Port Trust
2. Zonal Railway Users' Consultative Committee for Southern Railways
3. Senate of the Madras University
4. State Board of Industries
5. Textile Trade Marks Advisory Committee
6. Sales Tax Advisory Committee
7. Madras Port Import Committee
8. Madras Port Export Committee
9. Regional Posts and Telegraphs Advisory Committee, Madras
10. Madras Telephone Advisory Committee
11. Zonal Advisory Committee for discussion of matters relating to exports of iron and manganese ore.
12. State Electricity Consultative Council
13. Air India International Advisory Committee
14. Central Excise Regional Advisory Committee
15. State Food Advisory Board.

The Chamber is a founder-member of the Federation of Indian Chambers of Commerce and Industry, a member of the Indian National Committee of the International Chamber of Commerce and is a sustaining member of the Indian Standards Institution.

The activities of the Chamber have been increasing from year to year. It has now on its rolls 900 members in addition to 40 District Chambers and Associations affiliated to it. It is perhaps the most representative Chamber of Commerce in South India. For the benefit of the mercantile community the Chamber had been registering trade marks but after special legislation, it has been discontinued. The Chamber issues Certificates of Weight, Certificates of Origin, Certificates of Quality and Certificates of Measurement for collection of freight. It has a separate weighment and Measurement Department. The Chamber owns a big Library. It furnished Weekly, Fortnightly and Monthly Market Reports on some of the important commodities to the Reserve Bank, the Customs and other Departments of Governments both State and Central.

One particular feature of this Chamber is its service to the cause of Indian abroad. It has been watching with zealous attention the interests of Indian nationals settled abroad. It has also been rendering financial assistance to deserving causes like leprosy relief, education of the blind, famine relief etc.

3. The Andhra Chamber of Commerce

The Andhra Chamber of Commerce, started on August 17, 1928, is one of the leading Chambers of Commerce in India. The membership of the Chamber is open to individuals,

firms, companies or corporations having their principal office or registered office or a branch office in the state of Madras or Andhra Pradesh.

The Chamber has been recognised by the Government of India and the State Government as an accredited spokesman of the business community; it has therefore been accorded representation on a number of public bodies.

The Chamber is now represented on various public bodies of which the important public bodies from the view point of our State are :

1. Madras Port Trust.
2. Southern Railway Zonal Users' consultative committee.
3. Madras Sales Tax Advisory Committee.
4. Madras Port Important Advisory Committee.
5. Madras Port Export Promotion Advisory Committee.
6. Madras Regional Posts & Telegraphs Advisory Committee.
7. Southern Railway Madras Station consultative Committee.
8. Madras Central Excise (Manufactured Products) Regional Advisory Committee.

The Chamber has to-day over 850 members; over 40 Chambers of Commerce and Trade Associations are affiliated to the Chamber. Members of the Chamber are drawn from different parts of Andhra Pradesh, Madras, Mysore and Kerala and from different trades and industries.

With the formation of Andhra State in 1953, the Chamber opened an Office at Kurnool. This office has since been shifted to Secunderabad, after the merger of parts of erstwhile Hyderabad State with Andhra Pradesh

4. The Hindustan Chamber of Commerce

The Chamber represents all Trades, Industries and Commerce with membership in all the States in the Southern Zone and has been serving the business community for several years in the past. Whenever occasion warrants the Chamber calls on the Union and State Ministers and discusses with them the problems relating to the trade and industry.

The Chamber is represented on several non-official Committees Constituted by the Union and State Governments.

5. The National Chamber of Commerce

The Chamber was formerly known as the Muslim Chamber of Commerce (South India) Madras. It had its birth in 1937 and has the interest of the small traders and small industries at its heart. Its efforts to rehabilitate several small-scale industries, particularly the handloom industry of the South, are noteworthy. During the Second World War many small industries were on the verge of extinction as a result of the imposition of ban on exports by the Government which they did to avoid any scarcity in the country. The pleading of the Chamber with the Government bore fruit and they agreed to allow export on a restricted scale under the quota system. This benefited several small industries.

6. The Tamil Chamber of Commerce

The Tamil Chamber of Commerce was founded in 1944 in order to promote and protect industry and trade in India, particularly in Tamil Nad; to watch over and safeguard the general commercial interests of the Tamils engaged in industry or trade in India and abroad; and to concert measures for advancing commercial and technical education and such study of different branches of art and science as may tend to develop commerce, industries and trade in Tamil Nad. Though at the time of its inception there were other Chambers of Commerce functioning in the then composite State of Madras, the need for a separate Chamber to protect and advance the interests of the mercantile community of Tamil Nad in particular was keenly felt by a number of leading businessmen. The really far-sighted promoters thought it fit that a separate Chamber to serve the needs of the interests in Tamil Nad should come into existence.

Though the Chamber was ostensibly founded for the benefit of the business community of Tamil Nad it has never confined its activities to Tamils alone but has enlarged its activities on broad national principles for the general weal of the mercantile community cutting across the State barriers. The Chamber can recall with pride the part played by it for the retention of the City of Madras in Tamilnad.

The Chamber's motto is "Sincerity, Service and Sacrifice" and it strives to fulfil the objects for which it was ushered into existence.

GENERAL

There are many more Trade Associations in the City and it may be difficult to confine to the limited compass of this book sketchy notes on all of them and so we shall rest content with furnishing a list of important ones among them (Appendix) XXI

TABLE XXI

List of Trade Association

1. Madras Chamber of Small Industries, Madras-1
2. All India Radio Merchants' Association, Madras-2.
3. Employers' Federation of Southern India, Madras-1
4. Madras Circle Pipe Dealers' Association, Ltd., Madras-1
5. Madras Circle Registered Stock-holders' Association Ltd., Madras-1.
6. Madras Hotel Association, Madras-1.
7. Madras Industries Association, Madras-6
8. Madras Kirana Merchants' Association, Madras-1
9. Madras Motor parts Dealers Association, Madras-2
10. Madras Piecegoods Merchants Association, Madras-1
11. Madras State Handloom Industry and Trade Association, Madras-1.
12. Madras Stock Exchange Association Ltd., Madras-1.
13. Motor Vehicles and Allied Industries Association, Madras-6
14. Small Scale Industries Association, Madras-2
15. South Indian Iron and Hardware Merchants' Association, Madras-1
16. South India Pipe Dealers, syndicate Ltd., Madras-1
17. Southern India Skin & Hides Merchants' Association, Madras-3
18. Waste and Scrap Utilisers Cottage Industries Association, Madras-4.
19. Madras Betel-nut Merchants' Association, Madras-1
20. Madras Chillies Merchants, Association, Madras.
21. Madras Cycle Imports' Association, Madras-1
22. Madras Dyes and Chemicals Merchants Association, Madras
23. Madras Foundrymen Association Madras-21
24. Madras Fruits Commission Agents' Association, Madras.
25. Madras Hardware (Sundry) and Paint Merehants Association, Madras.
26. Madras Jewellers and Diamond Merchants' Association, Madras-1
27. Madras Oil and seeds Association, Madras-1
28. Madras Opticians' Association, Madras-1
29. Madras Provincial Foodgrains Merchants Association, Madras-1
30. Sindhi (Mullani) Bankers' Association, Madras.
31. Southern Indian Roller Flour Mills Association, Madras.
32. Southern Indian Vysya Association, Madras-1.

Weights and Measures

In South India there was no uniformity of weights and measures. Even the attempts to have a uniform weights and measures failed when she came under the sway of different rulers. The rule of the Pandyas, Cholas, Hoysalas, the Muslims and later the Portuguese meant different weights and measures becoming prevalent in different areas related to weights of different coins in force from time to time, so that when the British came they found it difficult to assign exact values in terms of British units to the variety of weights and measures which has gained acceptance in different parts of South India.

This diversity in weights and measures in use in, different regions, as elsewhere in India, created an element of uncertanity in trace and rendered fraud on the part of retail merchants easy and profitable. It is however interesting to learn that as early as 1801, the State Government considered it necessary to issue a proclamation directing the introduction of a revised uniform system of weights and measures in Madras. The heaped measure which is now prevalent in this State came to stay as a result of this proclamation. A series of legislative measures to standardise the

weights and measures were attempted between 1847 and 1893 and only in 1893 the State Government recognised the following units as the standard weights.

180 grains	=	1 tola
3 tola	=	1 palam
8 palam	=	1 seer
5 seer	=	1 viss
8 viss	=	1 maund

In 1913 the Government authorised the recognition of the sub-multiples of the old standard maund namely ½ maund, ¼ maund, ½ viss, ¼ viss, 1/8 viss or 1/64 maund.

The weights and measures prevalent in Madras City prior to the introduction of the Metric system can now be described.

3 tolas	=	1 palam
8 palams	=	1 seer
40 palams (5 seers)	=	1 viss
50 palams	=	1 (tukku)

Fraction of the palam, viss and tukku were also in use and so was the rattal (3¼ lbs. approximately) which weighed 12 palams and a fraction was employed for special purposes. In Madras, the viss was the common weight. Groundnut was sold by the Baram (or candy) equal to 500 English pounds. The Gold-smiths sub-divisions of the seer were 32 kundu-mains (the small scarlet and block seeds of the Abrus precatiorous tree) made one varahanedai (or pagoda weight). 10 varahanedias made a palam and 8 palams made a seer. Sub-mulitiples of the varahamadai were also in use.

The officially recognised tables of grain measures were as follows:

132 tolas of rice	=	1 (heaped) Madras Measure
2 Madras Measures	=	1 Marakkal

Liquids were usually sold by fractions of the Madras Measures. But milk, butter milk and curd were not usually measured with any exactness, being sold at so much a potful; and ghee and oil were retailed by weight by the seer and palam mentioned above.

Lengths were measured by the English inch foot and yard. Acres and cents were the only land measures recognised by the Revenue authorities.

English hours and minutes are still being used.

It was in 1958 when the State Government passed the Weights and Measures (Enforcement) Act that the final decision was taken to implement metric reform in this State. This decision followed the Standard Weights and Measures Act of 1956 passed by Parliament and is being implemented smoothly. The Madras Government introduced the metric system of weights in 4 out of its 13 districts with effect from 1-10-58 with a transitional period of 2 years, during which both the new and the old weights were to continue side by side. Madras City was one of the districts chosen. The use of metric weights was made compulsory with effect from 1-10-1960.

Metric capacity measures have also been introduced in Madras City from 1-4-61 with a transitional period of one year for making them compulsory. Linear measures have also been introduced in the whole of the Madras State with effect from 1-10-61 and become compulsory on 1-10-1962.

The following are the metric weights, metric capacity measures and metric linear measures. The basic unit is kilogramme.

Metric weights

10 milligrams (mg.)	=	1 centigram
10 centigrams	=	1 decigram
10 decigram	=	1 gram (1000 mg.)
1000 grams	=	1 kilogram (Kilo)
100 kilos	=	1 quintal
10 quintals	=	1 tonne (1000 Kg.)

We give below the relationship of some of the new measures with the old measures

1 Kilogram	=	2.20 pounds
1 metric tonne	=	·984 ton
1 viss	=	1400 grams

Metric capacity measures

The metric capacity measures are of three types, the conical type, the pouring type and the dipping type. The basic unit is LITRE and the sub unit is the MILLILITRE.

The denominations of metric capacity measures in actual uses are:

Conical Type	*Litre Measure*	*Milli-litre measures*
	20	.500
	10=5	200
	—	
	2	
	1	100
Pouring type	2	500
	1	200
		100
		50
		20
Dipping type	1	500
		200
		100
		50
		20

1 litre = 1000 millilitres.

In terms of the old capacity measures, the approximate equivalents are:

1 litre = ¼ gallon approximately
= 1.1 seers -do-
= 4.5 Ollocks -do- (Madras)

The metrical linear measures

The basic unit is 1 metre:—

10 mili-metres (mm)	= 1 centimetre
10 centimetres	= 1 decimetre
10 decimetres	= 1 metre
1 metre = 100 c.m.	= 1000 mm.
In terms of old measures } 8 kilometres	= 5 miles
1 metre	= 1·09361 yard

The metric units used to measure areas are as follows:—

100 square metres	= 1 acre or 1 square dektametre
100	= 1 hectacre or 1square hectometre
100 hectacres	= 1 square kilometre

In terms of old measures
1 hectare = 2.47107 acres.

The history of metric refǒrm all over the world shows that in every civilized community, sooner or later, decimal currency and the scale of arithmetical notation based on the decimal system havecome to stay. No scale for measure of volume or quantity can be more convenient than one adopted in the decimal systems. The metric system is convenient and reduces the labour involved on calculations.

CHAPTER - X

GENESIS ANG GROWTH OF MADRAS CORPORATION

Introduction

Madras Corporation is the earliest of its kind established in the British India. The historians of the British India have failed to stress sufficiently its significance. It had its formal birth in 1688.

Madras before 1688

The native merchants settled round about the northern side of the Fort called the Black Town (later named George Town) in sharp-distinction to the Fort where the English merchants resided. The boundaries of the Black Town coincided with the present China Bazaar in the north, the inner northern wall of the present Fort St. George in the south and a drainage channel in the west. Gradually, the two other suburbs, Peddanaicken-pet and Muthialpet on the north-west and north grew up.

The Fort, with its garrison of twenty-five men and the Factory were administered by an Agent and Council of two factors, while the village of Madrassapatam, which was included in the grant of land upon which the fortress was built, was controlled by a staff of native officials. The chief of these were the Headman, the Accountant, and the Watchman, but there were numerous minor functionaries such as the potter, barber, washerman, carpenter, sweeper etc. All these officers were hereditary, and the earlier occupants had been remunerated by lands held practically free of assessment and by petty fees, which terms were continued by the Company on taking possession. The population was then roughly seven thousand, and, except for the settling of periodical faction fights, their duties were not very onerous. With the steady and vigorous growth of the village into a township the status of the above officials gained in dignity. Thus, in 1652, the Agent became 'President', the 'Headman', 'Governor of the Town' or 'Adigar', the Accountant 'Town Conicoply', and the Watchman (assisted by a number of Talliars) the 'Peddanaigue'.

The Governor of the Town sat at the Choultry, or Town House, as a Justice of the Peace, where he was assisted by the Town Conicoply. The Choultry was a court of petty causes, a custom-house, and a registration office for the recording of sales of real property and the licensing of slaves. The building was situated at the junction of Market Street with Choultry Street, afterwards called Choultry Gate Street.

The Peddanaick arrested evil-doers, and confined them in the Choultry jail pending their appearance before the Governor of the Town.

The first attempt towards the introduction and enforcement of measures for the improvement and safety of the town appears to have been made in 1674 when further, powers were granted to the East India Company including the right to levy a quit rent for the houses in the town. A survey of the town was directed by a resolution on 29th February, 1676. It was in 1678, when Governor Streynsham Master was in power that the houses were taxed for the first time, the taxes recovered being utilised for the conservancy of the Christian Town. The first attempt at conservancy was made in the same year when the Fort St. George council resolved to levy a house tax and create a department of conservancy. The council felt that it was the primary duty to see that the town is kept clean and healthy and hence they directed their attention to attend to conservancy. To meet the expenditure, they imposed the house tax. The levy amounted to one fanam* per house and the *total reveaue* by such assessment *was 110½ fanams*. The levy was initially made in the Christian Town, which was later on extended to the Black Town. In 1678, there was only *188 houses in the White Town and 75 houses in the Black Town*. Excepting the Governor all who owned houses were subject the payment of tax. The Superintendent of conservancy was designated as "the Scavenger" and

* The value of the fanam varied from 32 to 36 to the Pagoda. In 1675, the Company fixed the exchange rate between England and India at 9s. 8d. for the pagoda and 2s. 3d. for the rupee.

the first "Scavenger" was one John Figaria. Four coolies were maintained. The renumeration for the scavenger and the coolies were being met out of 2/3 of the income from the taxes. The Scavenger was empowered to collect the house tax and to remove the dirt and filth of the town and draw up a roll of the houses. Watchman were appointed for going round the streets. Tavern keepers, places of entertainments and others had to be licensed.

The Indian inhabitants have long fought vigorously against the tax saying that it was their previlege to be exempted from taxation. Also about this time weights and measures were regulated (according to the standard of the choultry) which bore the Company's mark. These revenues did not go far towards the expenditure on a growing town which now had a population of 3,00,000, the influx being due largely to the freedom of religious practice which the Settlement offered. Master also framed rules for the better administration of justice. Two English officials were appointed as choultry Justices to administer justice to the Indian inhabitants and this number was increased subsequently. The Governor himself began to sit as a Judge, thus forming an Appellate Court.

The foregoing is an account of the early development of Madras so far as the social services, maintenance of law and order and the protection of citizens are concerned. Municipal life in Madras thus saw its beginning in making arrangements for keeping the town clean and getting the control over the markets and places of public entertainments and regulating them.

Inauguration of Madras Corporation

During the Governorship of Flihu Yale (1687-1692) the institution of a Mayor and Corporation was set up. The scheme was worked from Sir Josiah Child, the masterful and imperious Governor of the Court of Directors, who had in mind the Dutch patters on colonial Government in the East Indies, 'than which a better cannot be invented'. In the general letter to Madras dated 28th September, 1687, Child detailed a plan for the formation of a Corporation composed of Indians mixed with some Englishmen and equipped with a regular Mayor, Aldermen and Burgesses, a Recorder and a Town Clerk, and armed with power to decide petty cases to levy rates upon the inhabitants for the building of schools, of a Town Hall and a Jail. A warning was issued to the Governor to be careful in the choice of Aldermen and Burgesses amongst the native influential merchants and not to admit those who might form combination 'but so mix the heads of all castes that you may always hold the balance.' Sir Josiah was particular that the Mayor, Aldermen and Burgesses should, before they entered upon their offices, take an oath to be true and faithful to the English King and to the Company and that the three English Aldermen should always be the servants of the Company.

In this elaborate letter Child invited the Madras Governor and Council to offer their own suggestion to his draft. But yet within three months of his first letter, he and the Deputy President of the Company had an audience with Kend James 11, and it was decided at this audience to send out a ready-drawn Charter under the Company's seal for the formation of the Madras Corporation; and along with this Charter, which was issued by the Company on the 30th September, 1687, were sent out the Maces and the Sword together with orders that the Corporation should be immediately started.

The Charter is too lengthy a document to be quoted here in extenso. However, the following are its principal provisions.

"We, the said Governor and Company, having found by experience and the practice of other European Nations in India that the making and establishing of Corporation in Cities and Towns that are grown exceedingly populous tends more to the well governing of such Populous Places, and to the Increase of Trade than the constant use of the Law Martial in trivial Concerns, we have therefore populous for the speedier Determination of small Controversies of little Moment, frequently happening among the unarmed Inhabitants, thought it convenient to make, ordain and constitute our Town of Fort. St. George, commonly called the Christian Town and City of Madrassapatam upon the coast of CHOROMANDEL in EAST INDIES, and all the Territorys thereto belonging, not exceeding the Distance of ten Miles from Fort St. George, to be a Corporation under us by the Name and Title of the Mayor Aldermen and Burgesses of the Town of Fort St.

George and City of Madrassapatam; and therefore, We, The said Governor and Company, do by these Presents ordain constitute and appoint that the Inhabitants of Fort St. George and Madrassapatam aforesaid, or so many of them as shall be hereby nominated....................shall be One Body Corporate and Politick in Deed and in Name, by name of the Mayor, Aldermen and Burgesses of the Town of Fort St. George and City of Madrassapatam really and fully for ever ....".

The Charter was proclaimed at Fort St. George on the 29th September, 1688 and Mr. Nathaniel Higginson became Madras's first Mayor. Three other English members of the Council, three Portuguese merchants, three Jewish merchants and three Hindus were nominated Aldermen in the Charter itself. Sixty Burgesses too were appointed. A new Mayor was to be elected on the 29th September every year and the Charter itself was to come into force on 29th September 1688. The Mayor and Aldermen were to be a Court of Record and the Mayor and the three English Aldermen were to be Justices of Peace. The Judge of the Supreme Court of Judicature that was created was to be Recorder of the Corporation and a Town Clerk who was also to be a notary was to be elected.

On the appointed day, the Corporation was inaugurated with all due solemnity, the Mayor and others taking their respective oaths. After lunch, towards three in the after-noon, the whole Corporation marched in their several robes, the Aldermen in scarlet serge gowns and the Burgesses in white china silk with a mace carried before the Mayor in procession to the Town Hall.

Mr. Higginson served only six months as Mayor and resigned. He was succeeded in his office by Mr. Littleton. The Corporation soon complained that they had no revenues or funds for carrying out the works expected of them such as the construction of a Town Hall, School house etc. The Council gave them the right to collect the existing petty taxes of paddy toll, measuring and weigher's duty and brokerage paid by the Town brokers. But these sources of revenue were applied to other subjects than those which the Corporation specified and there arose a quarrel between the Governor and the Mayor's Court. Governor Yale had meanwhile quarrelled with several of his Councillors, some of whom were Aldermen and he proposed to withdraw these taxes from the purview of the Corporation. These differences were supplemented by other causes of quarrel between the Governor and the Mayor Court. Under the Charter there was right of appeal from the Mayor's Court to the Court of Admiralty. But since the latter Court became extinct in 1689, the Mayor's Court held that its own decisions were final. Yale objected to this and the quarrel was made bitterer on this account.

In 1692 the Company complained that there were, as early as 1690, as many as eight English Aldermen in the Corporation and desired that the body of Aldermen should be composed of the heads of several castes like the Armenians, the Hebrews, the Portuguese, the Hindus and the Moors.

The Mayor and the Corporation so conferred upon Madras were a concession intended to reconcile the inhabitants to a system of local taxation for the upkeep of the town, cleaning the streets and generally for various Municipal purposes, for building a Town hall, and a school, "for salaries of the necessary municipal officers including a school master and for keeping in repair and enlarging our fortifications and the constant maintenance of 500 European soldiers". As a matter of fact, the Corporation did not raise any taxation or found any institution of the kind contemplated. The purpose had much to be commended but like many Western innovations when transplanted to Asiatic Soil it did not work in the way intended.

The Mayor and the Corporation established in 1688 continued as purely a Court of Justice administering justice according to the principles and practice of the English Courts of Law. Under the Charter constituting it, the Mayor and Corporation were also a Court of Record. They had summary jurisdiction in civil suits not involving more than ten rupees and in criminal cases anything short of taking away the life or limb of an offender. It formed a useful link in the chain that led to the establishment of improved Law Courts in the succeeding centuries. The Mayor's Court was reorganised under a Royal Charter issued in 1726. This court consisted of a Mayor and nine Aldermen. The first Sheriff of Madras (Mr. Nicholas Morse) was appointed under this Charter. Both

the Mayor and the Sheriff were persons of some consequences and when they went in State, their palanquins were surrounded by retinues of pikemen. On September 10, 1746, Madras was captured by the French. The Mayor's Court was dissolved. On August 13, 1749, Madras was restored to the English by the Treaty of Aix-la-Chapelle. The Mayor's Court was re-established on August 17, 1753 under a Royal Charter. The insignia of the Old Mayor's Court, having been reported lost during the French occupation, new emblems, the usual ensigns of State, such as the 'Sword, Mace, Silver Oar' etc., were ordered from Bombay.

Evolution of Municipal Administration

A Parliamentary Act of 1792 finally gave the Company the power to levy Municipal Taxes in the city and it was resolved to order an assessment of 5% to be collected from the inhabitants on the estimated annual house rents. It was then that the town cleaning duties were entrusted to the officers known as Surveyors and Collectors under whom conservancy work was to be done by contract. This Act further empowered the Justices of the Peace to make arrangements for the care of the streets, to collect the assessment and to license the sale of spurious liquors. This is the commencement of the Madras Municipality proper, differing from the Mayor and the Corporation who were almost purely judicial functionaries.

The Mayor's Court continued till 1798 when it was replaced by the Recorder's Court. This Court was superseded by the Supreme Court constituted on September 4, 1801 under a Royal Charter. It was presided over by three Barrister judges appointed in England. When the Supreme Court was established the Mayor and the Aldermen automatically ceased to exist. How exactly the institution was abolished is not known. The office of Mayor was revived in 1933.

A subsequent Act of 1836 of the Government of India imposed the condition that the Municipal assessment should have the approval of the Governor in Council. A subsequent Act of 1841 sought to give a greater latitude of action and reality of Local Self-Government to the City. According to this, rate payers of particular sections of the city were empowered with the assessment collection and management of the rates of their divisions. In 1856 another Act passed for the conservancy and improvement of the Presidency cities, abolished the Bench of Justices and appointed three Commissioners who formed a body corporate with the title of "Municipal Commissioners". The Act also provided for the increasing of the maximum tax on houses and land from 5 to 7½% and also for a tax on all carriages and carriage animals.

The Madras Act IX of 1863 gave power to tax trades and professions and collect tolls on carriages, carts and animals on their entering the Municipal limits.

The Madras Act IX of 1867 introduced a radical alteration in the constitution of the Municipality. It divided the City into 8 wards each of which was represented by four Commissioners nominated by Government from among the residents. There was an executive officer who presided over the Council of Commissioners and the Commissioners in Council were empowered to modify and pass the annual budget. Provision was made for the systematic registration of births and deaths.

By a supplementary Act, Act V of 1871, the Corporation included among its purposes, the training and appointment of vaccinators. The Act of 1867 was superseded by Act V of 1878 which contained the most outstanding provision that sixteen out of the thirty-two Commissioners should be elected by the rate-payers. Provision was also made for the appointment of a special Sanitary Officer. In order to raise an additional income for meeting the expenditure on drainage, it was provided that a water tax not exceeding 4% and a lighting tax not exceeding 2% be added to the existing house and land tax.

The Municipal Law of the City was revised by another Act of 1884 regulating drainage and providing for the prevention of infectious and dangerous diseases. A supplementary Act of 1892 created the posts of the Revenue Officer, the Health Officer and the Engineer. The next important Act was that of 1904. It raised the number of Commissioners from 32 to 36 and allowed the Madras Chamber of Commerce and other bodies to elect 8 Commissioners. It provided for the election of a Standing Committee, converted the water tax into a water and drainage tax and raised it from 4 to 6½%. Act IV of 1919

divided the City into 30 divisions, raised the number of Commissioners, now designated as Councillors from 36 to 50 and increased the number of elected Councillors from 20 to 30, one Councillor for each division. It raised the number of Standing Committees from one to four, converted the President into the Commissioner and vested him with executive power; it also extended to women the franchise and the right to stand as candidates at Municipal elections. It also empowered the Corporation to levy all taxes without the sanction of the Government as laid down in Act VII of 1904. The Madras City Municipal Amendment Act of 1933 changed the designation of the President into that of Mayor.

Madras had no Mayor from 1902 to 1933. The title of "Mayor" current to-day is a dignity revived in 1933 by an amendment of the Municipal Act. Shri M. A. Muthiah Chettiar became the Mayor. The object of the amendment was to fall in line with the rest of the civic bodies in England and India, whose Presidents were styled "Mayor". In so reviving the dignity, the ornaments of the office of the Mayor have not been forgotten. The robes and insignia for the Mayor are ordained by regulations. The Corporation also provides a Gold Mayoral Chain with a Badge to be worn by him on special and ceremonial occasions. The crest of the Corporation with the word "Mayor of Madras" is embossed on the Badge as also a design of the "Ripon Buildings" and the words "Ripon Buildings, Corporation of Madras". The Mayoral Chain is passed on from Mayor to Mayor and is the property of the Corporation. A Mace with the Crest of the Corporation is also provided at a cost of Rs. 200/-. A jamedar is maintained to serve as an attendant on the Mayor and be the Mace bearer. The Presidential (Mayoral) Election since the year 1930 is governed by a healthy convention agreed upon by the City Council that year, which is designed to afford equal opportunities to the members of different communities to serve the City, by turns, as its President (Mayor). The following is the order of communities of members to be elected to the Chair.

1. Non-Brahmin Hindu
2. Brahmin
3. Non-Brahmin Hindu
4. Christian
5. Non-Brahmin Hindu
6. Muslim
7. Non-Brahmin Hindu
8. Depressed Classes.

(At the point the cycle commences again). This convention is being followed even to-day.

The Madras City Municipal Amendment Act of 1936 which came into force on 21st April, 1936 divided the City into 40 divisions, raised the number of Councillors from 40 to 60, provided for election of five Aldermen of whom one should be a woman. Provisions for the appointment of special Councillors by the Local Government and for the election of a Deputy Mayor from among the Councillors were introduced. The number of standing committees was raised from 4 to 6. It also authorised the levy of a graded tax on properties. Special provisions were incorporated in the Act with a view to enabling the Corporation to exercise necessary and effective control over owners of slum areas of the City for the purpose of ensuring the sanitation of 'cheries' and the provision of other necessary amenities thereto.

The Municipal Act of 1947 (Second Amendment) divided the City into 50 divisions. The City Council's strength was increased to 66. Special representation was given to Minority communities in the Council.

The Municipal Act of the year 1958 (Madras Act No. XXIV of 1958) divided the City into 100 divisions. The council strength was raised to 100. No new areas were added after 1948.

On April 14, 1962 the Madras City Municipal (Amendment) Act, 1961 came into force - a set of amendments designed to usher in greater decentralisation and according to its authors, to ensure better administration. The City is now divided into two Zones, North and South. Each Zone will have 50 divisions under its jurisdiction. Each of the territorial constituencies of the Madras Legislative Assembly, in the city constitutes a circle for the purposes of Municipal Government in the City. In the new set-up, there will be a Central Committee, Circle Committees, Corporation Accounts Committee, and Contracts Committee and a licence appeals Committee in the place of former Standing Committees.

The City and its Corporation Since 1901

Sl. No.	Particulars	1900-1	1910-11	1920-21	1930-31	1935-36
1	2	3	4	5	6	7
1	Population	5,09,346	5,18,660	5,26,911	6,47,230	7,06,471
2	No. of Municipal Divisions	8	20	30	30	30
3	No. of Houses (Assessed)	...	...	...	...	...
4	No. of Medical Dispensaries	2	3	6	19 Allop 1 Ayur 1 Unani	19 Allop 1 Ayur 2 Unani 1 Sidha & 2 lepy. clinics
5	No. of C. W. Centres	...	...	3	12	12
6	Birth rate (Per 1,000)	45.6	37.9	41.3	47.7	43.9
7	Death rate (Per 1,000)	46.2	39.8	41.3	42.4	35.3
8	Infantile Mortality	272.0	294.1	279.3	243.9	223.9
9	Total Water Consumption per day (in million gls) ...	...	—	16.33	19.27	22.79
10	Total Corporation Elementary Schools	...	1	27	142	134
11	Total Children attending	...	132	4155	28915	34,916
	Boys: Non-Muslims Boys: Muslims		105	3587	16514 2264	20,594 2546
	Girls: Non-Muslims Girls: Muslims		27	568	7952 2185	9123 2653
12	Expn. on Midday Meals	...	...	...	...	Rs. 30,266
13	Expn. on conveyance of Muslim Girls	...	...	...	...	...
14	Total Sewer Length	...	...	...	9,79,594	12,30,940
15	Total Sewage pumped (in million gls)	...	...	3633.80	6212.98	7817.54
16	Total Private F. O. Ls	...	...	...	2,127	9,897
17	Total Public Latrines and F.O.Ls.	...	...	100	67	66
18	Total No. of El: posts	...	...	45	132	240
19	Total Income of Corporation	25,91,800	32,55,899	46,24,720	56,36,796	64,51,417
20	Total Expenditure of Corporation	25,94,857	36,59,538	44,84,325	5531,073	61,18,104
21	Total No. of trees					
22	Total No. of public fountains					
23	Total No. of Bore-well Pumps					
24	Total No. of Water Meters					
25	Total No. of Fire Hydrants					
26	Total No. of Bath Rooms					

The City and its Corporation Since 1901 (Contd.)

		1940-41	1945-46	1950-51	1955-56	1960-61
		8	9	10	11	12
1	Population	7,77,481	8,33,923	14,29,374	...	17,29,141
2	No. of Municipal Divisions	40	40	50	50	100
3	No. of Houses (Assessed)	...	87,888	72,502	84,252	93,716
4	No. of Medical Dispensaries	20 Allop 1 Ayur 4 Unani 2 Sidha 2 lepy. & 1 Venereal	20 Allop 1 Ayur 4 Unani 3 Sidha 3 lepy 1 Venereal & 1 T. B.	32	40	46
5	No. of C. W. Centres	14	18	30	40	44
6	Birth rate (Per 1,000)	43.23	36.63	41.11	39.59	41.61
7	Death rate (Per 1,000)	33.98	32.71	29.31	19.90	18.71
8	Infantile Mortality	205.70	213.82	166.57	145.24	115.79
9	Total Water Consumption per day (in million gls)	21.55	26.80	19.9	27.8	31.8
10	Total Corporation Elementary Schools	140	155	225	275	301
11	Total Children attending	43,998	41,441	70,361	87,583	1,20,296
	Boys: Non-Muslims	25,951	23,123	39,936	47,848	64,714
	Boys: Muslims		2,993			
	Girls: Non-Muslims	18,047	12,556	30,425	39,735	55,582
	Girls: Muslims		2,769			
12	Expn. on Midday Meals	Rs. 50,000	Rs. 1,25,654	...	Rs. 2,33,032.55	Rs. 4,68,663
13	Expn. on conveyance of Muslim Girls	Rs. 12,358	Rs. 22,666	...	...	...
14	Total Sewer Length	15,04,725	16,10,424	16,80,360	22,47,933.60	26,08,953.60
15	Total Sewage pumped (in million gls)	7576.72	9401.14	8972.46	14,372.27	16,703.92
16	Total Private F. O. Ls	31,132	31,556	51531	60400	67581
17	Total Public Latrines and F.O.Ls.	65 / 249 } 22 Pub. convenience	40 / 90 } 85 Public convenience	399	430	426
18	Total No. of El: posts			16530	19139	22677
19	Total Income of Corporation	75,22,836	128.55 lakhs	205.04 lakhs	Rs. 293.83 lakhs	463.25 lakhs
20	Total Expenditure of Corporation	75,11,874	131.26 lakhs	205.01 lakhs	269.63 lakhs	445.32 laksh
21	Total No. of trees					8511
22	Total No. of public fountains					5658
23	Total No. of Bore-well Pumps					1242
24	Total No. of Water Meters					6341
25	Total No. of Fire Hydrants					3504
26	Total No. of Bath Rooms					186

Comparative Study of Madras Corporation with other Corporations
1960-61

Sl. No.	Particulars	Madras	Bombay	Calcutta
1		2	3	4
1.	Municipal Area	49.74 Sq. Ms	169 Sq. Miles	38.23 Sq. Ms.
2.	Population	17.2 lakhs	41,52,056	29,26,498
3.	Total Income	Rs. 463.25 ,,	Rs. 17,39,59,330 (17.40 crores)	Rs. 7,10,72,204/- (710.72 lakhs)
4.	Total Expenditure	445.32 ,,	Rs. 15,83,95,162/- (Rs. 15.84 crores)	Rs. 7.10,24,313/- (710.24 lakhs)
5.	Main Sources of Income	General Tax Drainage Tax Education Tax Lighting Tax Entertainment Tax, etc.	General Tax, Wheel Tax, Water Tax Property Tax, Halalkhor Tax, Licences etc.	Consolidated rates Tax on carriages and animals, Tax on dogs, Seavening Tax, Tax on profession, Trade & Calling Tax on earth, Fees from Municipal markets and slaughter markets, Building fees, Licences Fees etc.
6.	Grants from Provincial Government	38.87 lakhs	Rs. 21,46,927/-	Rs. 4,50,000/- Rs. 99 44,00/-
7.	Birth rate per 1000	41.61	28	26.27
8.	Death rate per 1000	18.71	10.4	12 21
9.	Total Road Length	600 miles (appr.)	543.078 Sq. Ms.	500.68 Miles.

Conclusion

Two statements, one showing the growth of the Corporation of Madras since 1900 - to the present time and the other showing the comparative study of the major Corporations with Madras - are appended.

As mentioned earlier, Madras Corporation is the oldest in the British India. It was only in 1717 that Mayor's Court was set up in Bombay in the Madras model. As for Calcutta, it was only in 1728 that a Mayor's Court was established. Thus, we see that Madras Corporation has served as a model for other Corporations. The Madras city Municipal Act is a masterpiece of legislative draftsmanship. The scheme of the Act follows a policy of real local self-government modelled on the British pattern. In it is enshrined all the important aspects of the municipal administration in Britain, the chief being the 'Committee system'. The three authorities, the Council, the Committees and the Commissioner are delicately balanced with checks and corrections, so that the Municipal administration would have different layers of filtrations, consultations and corrections.

Constitution of the Council and Corporation authorities

The Madras City Municipal (Amendment) Act, 1961 has introduced certain changes in the constitution of the Corporation, one among them being the replacement of the old Committees by the Circle Committees. The changes effected fall under three broad heads as follows:

(i) Reform of the composition of the Council and the Council Constituencies;

(ii) Reorganisation of the Standing Committees and Resettlement of their functions; and

(iii) Reform of the system of appointment to key posts in the service of the Corporation.

The aim of the new Act is to make the set-up of the Corporation adequate and suitable to match the present conditions. The constitution of the Corporation has been revised to bring about simplification and larger and more equal representation of the people living in different parts of the City in the electoral system. The Committee System has been decentralised. The procedure to the appointment to key posts in the

service of the Corporation has been streamlined in order to secure better talents. The new Act can well claim to have shot a fresh conspicuous woof into the old warp of the Madras City Municipal Act, 1919.

We have seen that the Fort St. George gradually flung its tentacles over the adjoining area and the City took shape. All the same it will be a surprise to know that while defining the territorial limits of the City for the purpose of the Madras City Municipal Act, the Fort St. George with the glacis has been excluded. The lands and buildings therein are exempt from property tax, though persons exercising any profession or calling within the Fort are required to pay profession tax and are also liable to pay vehicle and animal tax in respect of vehicles or animals kept by them.

The Municipal Authorities charged with the civic administration of Madras City under the provisions of the Madras City Municipal Act as subsequently amended are:

(a) a council;

(b) a central committee, circle committees, a corporation accounts committee, a contracts committee and a licence appeals committee; and

(c) a commissioner, two assistant commissioners and a personal assistant to the commissioner.

Besides, there are the Taxation Appeals Committee and the Appointments Committee.

The Council shall consist of one hundred divisional Councillors elected in the manner laid down in the Act. If no persons belonging to a scheduled caste is elected as a Councillor from any of the Divisions in a circle, than the elected members of the Council shall, in accordance with rules to be made in this behalf by the State Government co-opt to the Council as its Councillor for such circle a person belonging to a scheduled caste and eligible for being elected as a Councillor from any one of the divisions of such circle. The Council shall byname of the "Municipal Corporation of Madras" be a body corporate and have perpectual succession. The Council has to meet every month but experience shows that meetings more than one are held in a month as the business to be transacted is varied and heavy with the increasing population. The Council has to consider all statements of receipts and disbursements and all progress reports and to pass on them such resolutions as it deems fit; and the annual report of the Administration of the Corporation and to forward it to the Government with its resolutions thereon, if any. It is the duty of the council to pass the Budget Estimates before the beginning of the year, to which it relates. It is also vested with powers of passing supplemental budgets. It is also the duty of the Council to make necessary adjustments of income and expenditure which may be found necessary to balance the budget. The Council is the authority to decide the rates at which taxation shall be levied. No amount can be borrowed except by a resolution of the council. The sanction of the Council is necessary for estimates and contracts and for the acquisition of immovable properties beyond certain monetary limits and for any lease for more than 3 years. It has certain powers over the Municipal establishment. The Council has to elect one of its members to be its Mayor at its first meeting, often the first day of November each year, and one of the members other than the Mayor to be its Deputy Mayor. Members of the Council are unpaid but recently the Government have permitted the use of the Corporation vans to drop them back at their homes in convenient batches after a council meeting.

Constitution of Circles

Each of the territorial constituencies of the Madras Legislative Assembly in the City will be a Circle for the purpose of the municipal government of the City of Madras. The City is divided into two parts, one part called North Madras and the other part called South Madras and each part comprising such number of circles as may be specified by the State Government.

Central Committee

There shall be a Central Committee which shall consist of

(a) The mayor;

(b) The Deputy Mayor; and

(c) One member elected by every Circle Committee from among its members in the prescribed manner.

2. The Chairman of the Central Committee shall not be the Chairman of any Circle Com-

mittee, and if the Chairman of any Circle Committee, be elected Chairman of the Central Committee, he shall be deemed to have vacated his office as Chairman of the Circle Committee on the date on which he enters upon his office as Chairman of the Central Committee.

3. A member of a Circle Committee shall hold office as a member of the Central Committee only so long as he is a member of the Circle Committee.

Circle Committees

For each Circle there shall be a Circle Committee. A Circle Committee shall consist of the Councillors of all the divisions constituting the Circle and the Councillor, if any, co-opted for the Circle. A member of a Circle Committee shall hold office as such till his term of office as Councillor is in any manner determined. Subject to the provisions of the Act and rules made thereunder, the Council shall, by regulations provide for a conference of two or more Circle Committees or for the appointment out of such committees of a Joint Committee for any purpose in respect of which they may be jointly interested.

Corporation Accounts Committee:

There shall be established a Corporation Accounts Commmittee which shall consist of the Mayor and seven other members elected by the Council from among its Councillors.

A Councillor elected to be a member of the Corporation Accounts Committee shall hold office as such, unless he sooner resigns the same, till his term of office as Councillor is in any manner determined.

When a vacancy occurs in the Corporation Accounts Committee, the Council shall fill up the vacancy as soon as may be by the election of another Councillor.

The Corporation Accounts Committee in addition to the powers and duties assigned to it under such regulations

(a) shall supervise the utilisation of the budget grants;

(b) shall have access to the accounts of the Corporation and may require the Commissioner to furnish any explanation which it considers to be necessary as to the receipts and expenditure of the municipal fund;

(c) may conduct a monthly audit of the municipal accounts and shall be bound to check the monthly abstract of receipts and disbursements for the preceding month as furnished by the Commissioner; and

(d) may write off the amount of any loss of or of any depreciation caused to municipal property which appears to the committee to be irrecoverable.

Contracts Committee

There shall be established a Contracts Committee which shall consist of the Mayor, the Chairman of the Central Committee and the Commissioner; and the Mayor shall be the Chairman of the Contracts Committee.

Licence Appeals Committee

There shall be established a Licence Appeals Committee which shall consist of five members to be elected by the Council from among its Councillors.

A Councillor elected to be a member of the Licence Appeals Committee shall hold office as such only so long as he is a Councillor.

When a vacancy occurs in the office of a member of the Licence Appeals Committee before the expiry of the term of his office as member, the Council shall fill up the vacancy, as soon as may be, by the election of another Councillor.

Election of Chairman to the Committees

The Central Committee shall, at its first meeting elect one of its members (other than the Mayor or the Deputy Mayor) to be its chairman and if the Chairman so elected is already the Chairman of the Corporation Accounts Committee or the Licence Appeals Committee, he shall be deemed to have vacated his office as Chairman of the Corporation Accounts Committee or the Licence Appeals Committee as the case may be, on the date on which he enters upon his office as Chairman of the Central Committee.

Each Circle Committee or the Corporation Accounts Committee or the Licence Appeals Committee shall at its first meeting elect one of its members (otner than the Mayor, the Deputy Mayor or the Chairman of the Central Committee) to be its Chairman.

The Chairman of the Central Committee or of

a Circle Committee or of the Corporation Accounts Committee shall be entitled to hold office from the time of his election and until the election of his successor provided that in the meantime he does not cease to be a Councillor.

Powers of the Committees and Sanction of Staff for the Committees

Subject to the provisions of the Act and the rules made thereunder, the Council shall, by regulations framed for the purpose, determine the powers and duties of the Central Committee, Circle Committees, the Corporation accounts committee, the contracts committee and the licence appeals committee.

The Council shall sanction such staff as may reasonably be required by the central committee, the circle committees, the corporation accounts committee, the contracts committee and the licence appeals committee to discharge their functions.

The Taxation Appeal Committee

This committee constituted under rule 14 of Schedule IV of the Madras City Municipal Act is the authority created by the Amending Act of 1936 to decide appeals against assessment to taxes in case the assessee does not accept the order of the Commissioner. The Committee shall consist of three members, two of whom shall be members of the council elected by it and the third shall be a person appointed by the State Government who shall be the Chairman of the Committee. Appeals against the committee's decision lie to the Small Causes Court.

The Appointments Committee

This Committee shall consist of the Mayor, the Chairman of the Central Committee and the Commissioner and the Mayor shall be its Chairman. It has got certain powers to make appointments to the posts in Class III and Class IV.

In this connection it may be mentioned that the Corporation establishment consists of Officers namely:—

Class I-A-A health officer, an engineer, an electrical engineer, a waterworks engineer, a drainage engineer, a revenue officer, a chief accounts officer and an educational officer.

Class I-B-Officers, who in the opinion of the Council are of a status equivalent to the status of Class I-A officers appointed to serve under the corporation.

Class II - Assistants to Class I-A and Class I-B Officers.

Class III - All other persons (not being persons holding posts in a service classified by the council as a last grade service) appointed to service under the Corporation.

Class IV - All persons holding posts in a service classified by the council as a last grade service.

Additional Committees

The Council may with the previous sanction of the State Government constitute additional committees for such purposes as the Council thinks fit.

The question of framing rules governing the functions of the newly constituted committee is receiving attention and the rules are expected to be finalised shortly by the Government.

Commissioner, Assistant Commissioner and Personal Assistant to the Commissioner

There shall be two Assistant Commissioners and a personal assistant to the Commissioner.

The Commissioner, the Assistant Commissioners and the Personal Assistant to the Commissioner shall be appointed by the State Government.

The Commissioner, the Assistant Commissioners and the Personal Assistant to the Commissioner shall be whole time officers of the Corporation and shall not undertake any work unconnected with their offices without the sanction of the council and the State Government.

Mayor

The Mayor is elected once a year by the members of the Council (other than the Special Councillors nominated by the State Government) at the first meeting of the Council in November. He presides over the meetings of the Council and he is an ex-officio member of all the Committees except the licence appeals committee and the taxation appeals committee. The genesis and history of Mayorality have already been dealt with in the earlier section. The Mayor of Madras is considered to be the first citizen and although his office is an honorary one and does not carry with it any executive power, as the presiding

officer of the Council the ultimate authority in all municipal matters within the framework of Madras City Municipal Act his influence over the council and the civic administration is unlimited. The Mayor receives no salary but he is provided with the use of a car and his official entertainments are organised and paid for by the Council.

Deputy Mayor

The Deputy Mayor is also elected by the Council at the first meeting of the council in November. On him devolves the functions of the Mayor, when the Mayor is absent or when he delegates his powers to the Deputy Mayor or when the office of the Mayor is vacant. The Deputy Mayor too receives no salary but he is also provided with the use of a car.

Commissioner

The Commissioner is the Chief Executive Officer of the Corporation. Though he is not a member of the Council he has the right to attend the meetings of the Council and of the Central Committee, any Circle Committee, the Corporation Accounts Committee or any other Committee constituted under this Act and must, if desired by the Mayor or the Chairman of any of the Committees take part in the discussion. He has the right to intervene at any stage of the Council's debates but no right either to move any resolutions or to vote on any subject. The Commissioner has to give effect to every resolution of the Council unless it is cancelled or suspended by the Government. The Executive powers for carrying out the provisions are vested in him. He is vested with the powers in regard to the day-to-day administration set up; he has been given two Assistant Commissioners who are in charge of two zones, each zone comprising 50 municipal divisions, subject to his general superintendence, direction and control. He has also been given a Personal Assistant. The Commissioner may delegate his powers, duties/functions to his Personal Assistant and Assistant Commissioners subject to certain restrictions, limitations and conditions. The Commissioner is provided with the use of a car for official purposes.

Other Officials

The other principal officers of the Corporation are (1) The Health Officer (2) The Engineer (3) The Electrical Engineer (4) The Revenue Officer (5) The Educational Officer (6) The Chief Accounts Officer (7) The Water works Engineer and (8) The Drainage Engineer. Every application to the posts No. 1 to 6 shall be made by the Council from out of a panel of names prepared by the State Government and that the posts 7 and 8 shall be made by the Council subject to the confirmation by the State Government. They all work under the control of the Commissioner.

Powers of the Government

The State Government exercise general control over the administration of the Corporation. The following are some of the important ways in which it is exercised.

They appoint the Commissioner and the Personal Assistant to the Commissioner and the Assistant Commissioners. They can examine the records and documents of the Corporation or call for any information or statistics relating to any matter dealt with by the Corporation and they also reserve to themselves the power to give directions to the Council, or the Commissioner in a proper manner. They can also cancel a resolution of the Council in whole or in part on the ground that it is in excess of the powers conferred by this Act or by any rules made under this Act or repeal wholly or in part or modify any by-law made by the Council. They have to accord permission for the raising of loans by the Corporation. They also arrange for the audit of municipal accounts and pass orders on the Auditors' Reports. All the by-laws made by the Council have to be confirmed by the State Government. The sanction of the State Government is also necessary for abolishing or reducing the rate of any existing tax or duty. They can also sanction or reject any project costing more than Rs. 5 lakhs either entirely or subject to modification. They also keep themselves in close touch with the details of the administration by getting the annual budgets and the administration reports of the Corporation and scrutinising them. If any doubt arises as to the municipal authority to which any particular function pertains, the matter shall be referred to the State Government whose decision shall be final.

The Central Government too have been given some powers under the Act. The Corporation is prohibited from levying a tax on Companies. The State Government is permitted to decide the dispute between the Corporation and any Cantonment Authority or the Port Authority of a major port. The Central Government can accord sanction for the construction and maintenance of any railway line on any of the public streets in Madras or upon any land in or without Madras which is vested in the council.

Corporation at Work:

The administrative machinery of the Corporation is run by eleven departments viz. The General Department, the Health Department, the Child Welfare Section, the Works Department, the Water Works Department, the Electrical Department, the Special Works Department, the Mechanical Engineering section (department), the Education Department, the Revenue Department and the Central Accounts Department.

Fifty years ago the annual income of Madras Corporation was a few lakhs. In 1958-1959 the Corporation had a budget providing one crore as the income. To-day it has exceeded four crores. But then, Madras city had an area of only 27 sq. miles. The present city covers an area of about 50 sq. miles with its extended areas on all the three sides.

A quick glance at the income expenditure pattern of the Corporation during the last 40 years will reveal how the income and expenditure have steadily gone up. Forty years ago, the Corporation's annual income was about Rs. 47,00,000 of which 30,00,000 came from property tax. In 1930-31 out of a total income of Rs. 77,00,000 property tax alone accounted for Rs. 56,00,000. The expenditure that year was about Rs. 73,00,000. In the next decade the income and expenditure increased and in 1940-41 the Corporation receipts touched almost one crore, the expenditure standing at Rs. 95,43,000. Of the 99,87,000 rupees income Rs. 77,00,000 came from the tax on property alone. In 1950-51 by which time the City had expanded from about 27 sq. miles to 50 sq. miles with the annexation of areas contiguous to the City, the annual receipts rose to over 2 crores. The receipts amounted to Rs. 2,05,47,000 and the expenditure to Rs. 2,04,01,000. Of the total receipts Rs. 95,62,000 came from the general taxes, including lighting, water and drainage taxes and Rs. 14,39,000 through education tax which was about 7.02% of the total. The Corporation, in the past ten years has recorded further progress. Its income for 1962-63 (current budget) is estimated at Rs. 4,21,00,000 and expenditure at Rs. 4,47,00,000. Of the total anticipated receipts this year nearly Rs. 2,02,00,000 has to come through property taxes Rs. 40,00,000 through entertainment tax and about Rs. 36,00,000 through excess water levy. Under the major heads of expenditure, Public Health alone would consume Rs. 1,50,00,000 communications about Rs. 35,00,000 water supply Rs. 50,00,000 and drainage Rs. 60,00, 000. Two charts showing the income/expenditure break-up for 60-61 are also appended. A statement showing the receipts and charges of the Corporation from 1900 uptodate is appended.

The 'Hindu' noted for its balanced views all through has come forward with a timely leader on the ticklish question of the 'Local Finance' in its issue dated 1962. It makes interesting reading.

"No one doubts that the Madras Corporation will need a lot more money than it commands at present, if the civic amenities are to improve to the level of modern cities. The cost of even the existing limited services tends to rise with the passage of time, as the price of materials and wages also increase. It is true that the periodical revision (always upward) of property tax which form the staple of local finance has been provided for. The periodicity of the revision varies from three to six years in the various States. In Madras quinquennial revision is the vogue and the property owners have put up with this necessary evil in the interest of civic administration. But in their latest attempt to improve the Corporation's coffers its assessors seem to mistake revision to mean arbitrary and abnormal and indiscriminate increase in the property tax. From the complaints voiced by various house owners in our letters columns, it looked as if enhancements ranging from 30 to over 100 per cent have been notified. Similar complaints have been heard from many municipal areas in Andhra Pradesh in recent months. Such increase would result only in acute

CORPORATION OF MADRAS

1960 - 61

Income Chart

	RECEIPTS Rs. in lakhs	Percentage
I PROSPERITY AND EDUCATION TAX:		
(a) General Tax	85.13	18.37
(b) Lighting Tax	18.67	4.30
(c) Water Tax	32.65	7.04
(d) Drainage Tax	46.65	10.07
(e) Education Tax	32.69	7.05
II OTHER ITEMS		
(a) Profession Tax	11.93	2.36
(b) Tax on Companies	6.80	1.46
(c) Tax on Timber	2.13	0.46
(d) Tax on Entertainment	37.17	8.02
(e) Duty on Transfer of Property	23 28	5.02
(f) Tax on Carriage and Animal	1.85	0.40
(g) Compensation for loss of Toll Revenue	3.65	0.70
(h) Advertisement Tax	0.98	0.31
III MISCELLANEOUS		
(a) Government Grants and Contribution	38 87	8.39
(b) Collection for excess Water	31.15	6.93
(c) Licence Fees	21.83	4.71
(d) Rent on Land and Building	5.62	1.01
(e) Market Fees	3.58	0.77
(f) Other Items	58.62	12.65
Total Receipts	463.25	100.02

CORPORATION OF MADRAS

1960 - 61

Expenditure Chart

	EXPENDITURE	
	Rupees in Lakhs	Percentage
(a) Education	67.84	15.26
(b) Communication	59.91	13.45
(c) Medical Relief	14.52	3.26
(d) Sanitation and Vaccination	13.78	3.09
(e) Conservancy	63.99	14.36
(f) Maternity and Child Welfare	11.86	2.66
(g) Public amenities	8.89	2.66
(h) Remunerative Enterprise	25.10	5.63
(i) Lighting Account	20.15	4.52
(j) Water Supply account	55.51	7.97
(k) Drainage Account	47.49	10.66
(l) Repayment of Debt and interest on loans	52.87	11.89
(m) Supervision and Management	23.41	5.26
Total Expenditure	465.32	100.67

hardship in many cases. In the days before 1931, when the toll system was in operation, every municipal body could raise revenue to maintain its roads by levying a fee or toll on every vehicle entering its precincts. The replacement of that system by the more rational Motor Vehicle Tax need not be regretted.

Particulars of the loans, grants and advances sanctioned by the Government to the Madras Corporation under the Second Five year Plan are furnished below:

The Offices of the Madras Corporation are housed in 'Ripon Buildings' situated in Division No. 64, Park Town to the west of the Moore Market. The main building faces the Poonamallee High Road. Built of brick and lime mortar with comparatively little stone, and surmounted by a graceful clock-tower, these buildings present an imposing appearance quite in keeping with the dignity and the ancient lineage of the Madras Corporation, the offices of which were confined till 1913 in very narrow premises in Errabalu Chetty Street, one of the transverse streets in Eastern George Town. The new buildings were named after Lord Ripon, a former Viceroy of India (1880-84).

Total Receipts and Charges — Madras Corporation From 1900-1960

No.	Year	Total Income	Total Expenditure
1.	1900-1901	Rs. 25.91 lakhs	Rs. 25.94 lakhs
2.	1910-1911	„ 32.46 „	„ 36.60 „
3.	1920-1921	„ 46.25 „	„ 44.84 „
4.	1930-1931	„ 59.78 „	„ 55.31 „
5.	1931-1932	„ 61.59 „	„ 57.31 „
6.	1932-1933	„ 60.62 „	„ 54.64 „
7.	1933-1934	„ 62.02 „	„ 60.25 „
8.	1934-1935	„ 62.03 „	„ 58.44 „
9.	1935-1936	„ 68.23 „	„ 60.73 „
10.	1936-1937	„ 68.11 „	„ 58.50 „
11.	1937-1938	„ 69.59 „	„ 65.02 „
12.	1938-1939	„ 73.71 „	„ 64.78 „
13.	1939-1940	„ 73.35 „	„ 70.31 „
14.	1940-1941	„ 83.00 „	„ 80.26 „
15.	1941-1942	„ 78.59 „	„ 79.73 „
16.	1942-1943	„ 84.88 „	„ 77.21 „
17.	1943-1944	„ 87.82 „	„ 88.58 „
18.	1944-1945	„ 109.26 „	„ 107.10 „
19.	1945-1946	„ 128.55 „	„ 131.26 „
20.	1946-1947	„ 145.09 „	„ 152.61 „
21.	1947-1948	„ 168.55 „	„ 172.42 „
22.	1948-1949	„ 185.74 „	„ 197.84 „
23.	1949-1950	„ 180.52 „	
24.	1950-1951	„ 205.04 „	„ 205.01 „
25.	1951-1952	„ 252.81 „	„ 228.03 „

Total Receipts and Charges—Madras Corporation From 1900-1960 (Contd.)

No.	Year	Total Income	Total Expenditure
26.	1952-1953	„ 247.83 „	„ 244.51 „
27.	1953-1954	„ 242.62 „	„ 252.86 „
28.	1954-1955	„ 261.23 „	„ 259.34 „
29.	1955-1956	„ 293.83 „	„ 269.63 „
30.	1956-1957	„ 297.09 „	„ 308.26 „
31.	1957-1958	„ 325.10 „	„ 347.39 „
32.	1958-1959	„ 372.88 „	„ 373.42 „
33.	1959-1960	„ 406.27 „	„ 408.38 „
34.	1960-1961	„ 463.25 „	„ 445.32 „

APPENDIX

Statement showing the loans, grants and advances sanctioned by the Government to the Madras Corporation under the Second Five Year Plan

S. No.	Name of Scheme	1957–58	1958–59	1959-60	1960–61
		Rs.	Rs.	Rs.	Rs.
1.	Water Supply Scheme	9,82,877 (G) 4,20,000 (L)	9,97,998 (G) 8,39,000 (L)	14,72,535 (G) 16,24,000 (L)	79,594 (G) 19,97,000 (L)
2.	Drainage Schemes	5,02,700 (L) 50,000 (G) 37,780 (G)	6,46,000 (L) 2,58,603 (G)	9,72,300 (L) 5,98,607 (G)	... 3,871 (G)
3.	Low Income Group Housing Scheme	3,25,000 (L)	5,00,000 (L)	5,00,000 (L)	5,00,000 (L)
4.	Slum Improvement Schemes	7,13,113 (L)	10,45,775 (L) 3,28,438 (G)	7,01,263 (L) 7,20,750 (G)	18,01,244 (L) 5,21,662 (G)
5.	Overbridges over Railway Lines	1,65,000 (L) 2,82,087 (G)	1,00,000 (L) 1,00,000 (G)	3,00,000 (L) ...	2,50,000 (L) ...
6.	Food Production Urban Compost Scheme, Purchase of lorries for transport of compost	...	...	60,000	...

Note: G = Grant
L = Loan

AMENITIES

Municipal Service is as important and essential as, if not more than, any other service. The wide field covered, the varied points at which it touches a man's life, its responsibilities and obligations to the public and the many amenities it provides to the community-all these have a decisive influence on every man's life, his happiness and well-being. The public amenities afforded by the Municipal administration are water supply, drainage, conservancy lighting etc. Any break-down for a brief spell of anyone of these services, nay even a shortage or delay, is bound to cause great annoyance and inconvenience to the public in the affected area and evoke adverse criticism. Compared to modern cities of similar size in the advanced countries, the civic amenities in Madras City are rather at a low level. This is attributable to the fact that the growth of local revenues is not able to keep pace with the growth of local expenditure.

Before an attempt can be made to relate in some detail one by one the basic amenities provided by the Corporation of Madras, a short resume of the growth of different amenities and social services in the City will be welcome.

The City, till about the middle of the last century was dependent solely on shallow wells for its water supply, and in 1866, it was decided to adopt the proposal of Mr. Fraser, C. E., to take water from the Kortalayar river. The project was completed in 1870.

The first attempts at conservancy were more or less coeval with the early years of British Settlement. The main sewerage system was designed about the year 1907.

It was about 1792, that an astronomical observatory was started and a separate Medical Department was constituted for Madras under the control of a Physician-General. The Madras Post Office was started in 1786 and it was arranged that all letters were to be paid postage at the rate of one 'fanam' each per hundred miles. Newspapers began to appear about this time. The first Madras newspaper was known as the 'Madras Courier'. It was a weekly and served as a medium for the publication of the Government notifications and was allowed to be posted free of charge.

The Madras Library Society housed in a fine building adjacent to the Office of the Director of Public Instruction began its life in 1812. The Connemara Library was built in the time of Governor Lord Connemara (1886-90).

The Male Orphan Asylum was developed out of the Charity School maintained by the Vestry of St. Mary's Church. A press was established in the school which provided useful training for the orphans. Government printed their Gazette at this press. From this emanated the Asylum Almanac, a publication which was discontinued later on.

A Female Orphan Asylum was founded in 1797 by the efforts of Lady Campell, wife of Governor. It existed as a separate institution for over a hundred years and was recently merged with the Lawrence Asylum in Ootacamund.

In 1798, there was established a Recorder's court which entirely re-organised the administration of justice in the City.

It was during the stress of the Mutiny days that the University of Madras was started. The picturesque Marina owes its existence and its romantic name to Governor Sir Grant Duff. (1881-86)

The earliest effort to construct a railway line was from Madras to Minnel made on the 9th June, 1853. In 1922 the scheme known as Madras Improvements' was prepared. This led to the construction, beside the main line, of new Up and Down electrically equipped sub-urban tracks from Madras Beach to Tambaram (21 miles). Efforts are now on way to electrify the line upto Villupuram.

The sanction to construct the first Tramway within the city was issued by Government in 1892 to Messrs. Hutchinson and Company, Limited, London, but it was only in 1895, that the first tramway section was completed and opened for the use of the public. Since 1955, the trams were off the road consequent on the liquidation of the Tramway company.

The work on the construction of a Harbour was started in 1881 and completed in 1896.

The first light-house was built on the 18th January, 1841.

The use of electricity for street lighting began in a small way in 1910 till then the streets were lit with oil lights.

Early in the 19th century, the Monegar

Choultry which exists even now developed out of a previous standing fund into a permanent institution for the relief of the sick and poor. A municipal poor-house has been started by the Corporation. The beginnings of the Madras Lunatic Asylum go back to the last years of the 18th Century. Government contribute to the upkeep of the Triplicane Langar Khana, the Orphan Asylums etc. Mention must also be made of the Friend-in-Need Society started in 1807, for the relief of the indigent Eurasians, the Society for the Prevention of Cruelty to Animals, the Pinjrapole largely maintained by the charity of the Marwari community, the Humanitarian League and the Society for the Protection of Children.

The starting of a Museum in 1851 under Government auspices may be regarded as part of their activity in the field of educational promotion. The Zoological garden was started as an adjunct to the Museum in 1853. It was shifted to People's Park which was opened in 1861. In 1866, it was handed over to the Madras Corporation.

The Madras Race Club course existed even as early as 1777, though records relating to this period are not traceable. In 1896, after nearly a century when Racing in Madras went through many vicissitudes, the Madras Club was formed.

A regular broad-casting service was started by the Corporation on 1st April, 1930 which functioned till the middle of June, 1938 when the broadcasting service in the country was taken over by the Government of India.

Though there are several markets in Madras City for the sale of vegetables, meat, fish, eggs etc., the earliest of them is 'Kotwal Bazaar' (popularly known as Kothawal Chavadi). This was founded in 1782 and it is run by Shri Parameswari Devasthanam Charities.

The Corporation maintains two Stadiums one near the People's Park, with all modern facilities to run big sports Meet and the other at Egmore exclusively for Tennis and Hockey. The former was built in 1946.

Madras City can boast many modern picture houses. There is one theatre in the city exclusively screening children's films. The Children's theatre built by the Government in 1958 is the unique feature of the city and films of educative value are being shown to children.

Let us now turn our attention to the basic amenities provided by the Corporation.

Conservancy: The Conservancy Department of the Madras Corporation renders the most needy service to the citizens. It is the first act of service of the Corporation towards its rate-payers, the first thing in the morning along with the daybreak. The work begins from the simple sweeping of the rubbish strewn on the streets to the cleaning of drainage, maintenance of public conveniences, removal of nightsoil from dry latrines and open places and removal of sullage water from cess pools in the extended and unsewered areas of the City. We may briefly trace the growth of the service.

In the early years of the British Settlement in Madras and before the Corporation was established, the Governor of the East India Company made arrangements for keeping the Town clean by appointing scavangers for the purpose and defrayed the expenses thereof by means of a moderate tax collected from the inhabitants. In 1688, the Corporation was inaugurated and the East India Company decided to transfer these taxes to the Corporation subject to the condition that the conservancy of the town was managed by the Corporation.

In 1776, the Company's Scavenger issued sanitary regulations for the prevention of nuisance in George Town prohibiting carts and cows being kept in the streets and compelling each house to have a cess-pool.

In 1793, an Act of Parliament was enacted by which the Corporation was given powers to appoint scavengers for cleaning the streets and to defray the expenses therefore by raising the necessary taxes.

It was then that the town cleaning duties were entrusted to officials known as Surveyors and Collectors under whom conservancy work was on contract basis.

In 1856, the Justices of the Peace were replaced by a body corporate consisting of three Commissioners who were to look after the conservancy and improvement of the Town of Madras. By Act IX of 1867, provision was made for the systematic registration of Births and Deaths and the sections relating to Public Conservancy and Public Health were amplified and improved. It was in that year that the Office of the Sanitary

Inspector was created. By Act V of 1871, the Corporation included among its functions the training and appointment of vaccinators and the application of the Indian Contagious Diseases Act and all local works of public utility calculated to promote the Public Health in the town.

Conservancy of the City till about 1905 was done on contract basis. The scavengers, carts, bullocks and drivers were all supplied by the contractors. Later, scavengers came to be employed by the department. Then the Corporation began to supply the carts. As an experimental measure 3 depots for conservancy animals and carts were started departmentally in 1905 and 3 more in the next year. The experiment proved a success and the contract system was abolished.

With the phenomenal growth of the City the service has also expanded very considerably. The City has now nearly 600 miles of roads. There are more than 500 latrines maintained by the Corporation of which about 300 are of the flush-out type. There are altogether 548 slums where sanitation is very bad. A number of these slums are located on private lands and the huts are so huddled up without any street alignment that regular conservancy is rendered difficult. In many cases the streets and lanes are too narrow even for bullock carts to negotiate.

The man-power and the vehicular force employed by the Corporation for conservancy work are revealing. It employes 1323 'thozhilalies' for cleaning streets, 949 for cleaning drains and syphons, 1075 for cleaning latrines and for picking nightsoil from open places, 133 for driving rubbish carts, making in all a total of 4,409 'thozhilalies'.

There are 753 bullock drawn vehicles on the whole consisting of 47 iron and rubber tyred trollies, 2:0 double bullock rubbish carts, 323 single bullock rubbish carts, 122 sewage barrel carts, 13 nightsoil iron-tyred carts and 19 mild steel carts. The total number of bullocks maintained is 1037.

This is not all. Motor lorries are also used for conservancy work. If bullock carts serve narrow streets, lanes and alleys, motor lorries are used in broader road and streets. The number of motor vehicles available for conservancy work is about 110 including two bull-dozers working in the dumping grounds. Out of these, 35 are old model vehicles. They have ceased to give economical service and are being slowly replaced by new lorries. Thus, in effect only 80 to 85 lorries are marched out daily.

The Corporation has taken up the work of progressive mechanisation of conservancy services to hasten the process of conservancy and with the loans provided by the Government, more lorries are being purchased and put on the road. This work may gather momentum during the Third plan period when more funds may be available for the purpose. The Corporation's intention is to march out not less than 100 serviceable lorries every day. It also proposes to replace gradually the iron-tyred carts by rubber-tyred ones. This will give relief to bullocks and also reduce the damage to roads caused by iron tyres.

A very large quantity of rubbish say 85,000 tons in a year is used with advantage for filling up pits and ponds in the vicinity of residential houses and for reclaiming low lying lands some of which belong to the Corporation. The rest of the rubbish i. e., 1.25 lakh 12,000 tons is transported to tipping platforms and from there to the dumping grounds which are mostly far away from residential localities. Even the few dumping grounds which are near and within easy reach, have to be shifted further away to obviate complaints from the residents of nearby localities. The desideratum shall be to take all the rubbish outside the City. It is also necessary to take full advantage of the rubbish, which if converted into compost, will be very useful manure. Agricultural belts in the vicinity of the City may, therefore, be suitable places for such compost manufacture. The corporation is examining this aspect even though the implementation of the scheme will involve the purchase of more lorries for transporting the rubbish to longer distances.

The Madras Government is organising every year an Anti-fly week. This is to focus the attention of the people to the menace caused by the flies and to enlist their co-operation in the performance of sanitary measures undertaken by the Health authorities to check the breeding of flies. The highlight of the week will be spraying of fly breeding places with insectisides and educating the public on anti-fly measures through films, posters etc. The Corporation observes the week and carries on the work through out the year.

A City Cleaning Week is organised every year

to focus the attention of the public on the value of cleanliness and sanitation, to rouse enthusiasm and instil civic consciousness in the minds of the public and to impress on the staff the dignity of labour.

The annual expenditure on conservancy is increasing year to year. It was Rs. 63.99 lakhs in 1960-61 as against Rs. 31.5 lakhs in 1951-'52.

Drainage:

The City of Madras presents very difficult problems in drainage, as it is particularly flat with no slopes whatever. This has necessitated a pumping scheme as opposed to a gravitation scheme. The sub-soil consists of sand in the eastern half of the City and clay or sand mixed with clay in the western portion. Large quantities of sub-soil water are encountered within a few feet below ground surface at all times of the year. These natural difficulties make it impossible to lay sewers below a certain depth except at prohibitive cost and necessitate the erection of a number of pumping stations.

For drainage purposes, the City is divided into a number of areas, the extent of each area being limited by the depths at which sewers could be laid without difficulty and within reasonable cost. Each area is served by a pumping station. The collection at each of the stations is pumped into a cast-iron pumping main and conveyed to the north-eastern corner of the City where it is allowed to discharge into the sea. Beginning from the South of Madras, the drainage areas with pumping stations are the South Mylapore, the North Mylapore, Triplicane, Napier Park, Greams Road, Purasawalkam, Law College and Royapuram.

The several drainage areas were grouped into three zones, viz., the Southern, the Western and the Northern zones and each one of these was provided with a Main station to which the sewage from the adjoining drainage areas was pumped. The three main stations were, the Napier Park pumping station at Chintadripet, the Purasawalkam Pumping Station in Perambur Barracks Road and the Royapuram Pumping Station on Mannarswami Koil Street. The system of drainage adopted is known as the 'Partially Separate System'. The rain water from the road surface and the excess rain water from the house drains flow through the road-side ditches and masonry drains into the nearest water course, such as the Otteri Nullah, the Coovum River and the Buckingham canal.

The main sewerage scheme was designed about 1907 by the late Mr. J. W. Madley. Prior to this there was no sewerage system worth the name. The area of the City covered by the original scheme was about 15 sq. miles. The scheme envisaged the construction of 15 pumping stations laying about 270 miles of sewers and providing about 40,000 house connections. Now the City sprawls to 50 sq. miles and the total length of sewers maintained is 494.12 miles. The above comparative figures will give an idea of the rapid expansion of the city. When the city grew in size and population, the several developed areas were and are being gradually provided with separate sewerage systems.

In some of the extended areas where there is no sewerage system, cess-pools are formed. There are about 6,500 cess-pools, and sewerage vans are used to remove cess-pool contents. The number of cess-pools is on the increase due to the rapid development of the extended areas which has necessitated the pressing into service of more sewage vans.

Any increase in the quantity of drinking water, pumped into the City's distribution system naturally leads to a corresponding increase in the quantity of sewage to be handled by the sewage pumping stations. In other words this adds to the strain on the sewage of pumping stations. In order to facilitate the letting in of more water for the City's supply from the Red Hills lake to Kilpauk Water Works and to minimise the strain on the existing sewage pumping stations, an additional Pumping Station was set up at Purasawalkam about a couple of years ago. From this new station, a sizeable quantity of sewage is pumped out daily to the Kodingayur Sewage farm, which enables the Corporation to make available a little more drinking water in the Western Zone without causing any congestion in the Sewage pumping system.

A sewage farm was set up at a cost of Rs. 16 lakhs under the First Five Year Plan. About 250 acres of land near Kodingayur about 2 miles from the northern City limits were acquired and the Sewage Farm commenced functioning from

November 1957. It is making good progress and earned for the Corporation a sum of Rs. 1 lakh from green grass alone during the year 1960-61. Consequent on the diversion of sewage to this Farm, the total quantity of sewage discharged into the sea has been reduced to some extent. A scheme for extending the sewage farm costing Rs. 6 lakhs has been sanctioned under the Second Five Year Plan and the work is in progress.

Further Plans:

Considering the immediate necessity for improving and enlarging the sewerage system in the City including the extended areas, the Corporation has prepared various schemes and obtained Government sanction for their execution. A scheme for Rs. 31.92 lakhs for laying sewers in Saidapet and another Rs. 7.36 lakhs for providing sewers with a separate pumping station in Cochrane Basin area were sanctioned and the works are nearing completion. Besides these, there are a few smaller schemes already sanctioned and awaiting execution. A major scheme costing about Rs. 69.88 lakhs for providing drainage in Kodambakkam area with a separate pump house and to utilise the sewage at a farm near Koyambedu has been sanctioned by the Government in the latter half of the year 1960 and a loan of Rs. 5 lakhs made available. The scheme has been taken up on hand. Drainage schemes for Sembiam and Ayyanavaram at a cost of Rs. 25.30 lakhs have been prepared by the Corporation and submitted to the Government for sanction. To improve the efficiency of the pumping system, old pumps run by steam and oil engines have been replaced by electric pump sets.

Of late, the establishment of a sewage farm in South Madras is being keenly felt. Till such time this scheme is completed the flow of sullage water from the City's drainage system into the three water ways of Cooum, Adayar and Buckingham Canal will be an inevitable feature. The existing pumping stations are unable to clear the abnormal load and hence the consequent overflow of sullage.

Apart from the various schemes taken up so for as a temporary measure to prevent the surcharge of sewers the Corporation has evolved a Comprehensive Master Plan for dealing with the entire sewage in the city in the future years. According to this, the drainage zones are to be increased from 3 to 5 and the sewage farms increased from one to four. Lands are proposed to be acquired in Koyambedu, west of Kodambakkam and in Nesapakkam, west of Saidapet and in Kottiwalkam, south of Thiruvannayur for setting up new sewage farms.

The Master Plan is expected to cost Rs. 450/- lakhs and the work will have to be carried out in stages. It contains provision for the handling of a larger quantity of sewage consequent on the increase in the water supply position which will be brought out by the schemes under contemplation. In pursuance of the Plan a scheme costing Rs. 144.69 lakhs for I zone for the northern area of the City and another scheme for V zone for southern area of the City amounting to Rs. 101.92 lakhs have been sent up by the Corporation to the Government through the Chief Engineer, Public Works Department (General).

Disposal of Storm Water:

The Corporation is spending large sums of money for the disposal of storm water throughout the city through open and closed water drains. During 1960-61 alone, it has constructed storm water drains to a length of 35,237 feet. The Government are helping the Corporation with loans in this regard. The disposal of storm water does not present any great difficulty except during heavy floods, thanks to the existence of several water courses, such as Buckingham Canal, Otteri Nullah, Coovum River and Adyar River which pass through the City.

General:

The magnitude of the sanitation problem of the City could well be understood from the fact that the City has about 600 miles of roads and over 500 slums to be attended to daily. Except for the main roads and important thoroughfares, the cleaning of the streets and by-lanes is far from satisfactory. One has to go round Kotwal Market in George Town and its surrounding areas to see how much the locality is in need of sanitation. The proper sanitary upkeep of the market premises calls for better attention. The Minister-in-charge of Local Administration recently visited the market 'in-cognito' during peak hours and his outspoken remarks on the bad state of affairs should be taken in the spirit in which they were

uttered and the Corporation authorities should lose no time to abate the nuisance.

Viewed in a larger perspective, the blame for the unsatisfactory state of affairs cannot be laid at the doors of the Corporation alone. The public too have their own share. Many people throw the rubbish across the streets or opposite to their neighbours' house although dust bins are provided. It is distressing that even in minor details our public have to be educated. In order to cope with the extensive work, it is well-worth attempting cleansing work during night hours also, as is being done in some of the big cities in the country. For this purpose, street lighting will have to be improved. But it is a matter of much greater concern that the Corporation which is responsible for the improvement of sanitation in the City should itself contribute to insanitation by letting filthy sewage into the water courses like the Buckingham canal, the Coovum, the Adyar and even the backwaters adjoining heavily populated areas like Mandavelippakkam. With the low level and stagnation of the water in the Canal for instance, the sewage and sullage tend to settle down, causing a perpectual stench that pervades the entire neighbourhood, pollutes nearby wells in houses and constitutes a menace to public health and the aesthetic susceptibilities of the people. Since these water-courses wend their way through many parts of the city, few in the Metropolis can escape the odour at some time or other. The project on hand with the Corporation to remedy this woeful state of affairs is the Comprehensive Drainage Plan, mention of which has already been made.

Registration of Births and Deaths:

Registration of deaths was first introduced in the City on 1st January, 1855 and the duty of collecting information vested with the Municipal and Police authorities. In 1868, the registration of both births and deaths was made compulsory and the work devolved upon the Corporation. It is now enforced under the provision of the Madras City Municipal Act.

Vaccination:

The Vaccination Department was originally administered by the Government Inspector of Vaccination and was transferred to the Corporation in 1878. Compulsory vaccination was introduced in the City in 1884. It is now enforced under the provision of Municipal Act by which every parent or guardian of an imported child more than 6 months old and residing within the municipal limits is bound to get it vaccinated. Provision has been made for the enforcement of compulsory vaccination as well. Till 1913, the work was done by trained vaccinators with a Deputy Inspector of Vaccination to supervise their work. From 1913, sub-assistant surgeons are in charge and they are assisted by trained vaccinators.

Food Control:

Sanitary control over the sale of articles of food is exercised by the Health Department by licensing all food handling establishments and private markets in the city and supervision over public markets and slaughter houses. The Inspectors of Weights, Scales and Measures are in charge of the work relating to the enforcement of the by-laws under the Madras Municipal Act prescribing standard weights, scales and measures.

Medical Relief:

The Corporation of Madras maintains 42 general dispensaries, 4 special clinics and an infectious diseases hospital. There are 2 leprosy clinics, one venereal clinic and a Tuberculosis clinic run by the Corporation. The hospital for the effective isolation and free treatment of infectious diseases is situated at Tondiarpet, on Thiruvotriyur High Road in a spacious ground walled off from the surroundings. It is only a few yards from the sea-front and enjoys an abundance of light and fresh air. It is provided with 130 beds. There are 2 ambulance cars for the conveyance of cases of infectious diseases to this hospital. The services of these ambulance cars are available free of cost to the public, for removing cases day or night. The City council recently accorded sanction for the acquisition of land measuring 21 acres in Velacheri village on the outskirts of the city at an estimated cost of 2.4 lakhs for the construction of Infectious Diseases Hospital for South Madras.

Maternity and Child Welfare:

It was in the year 1917, that the Corporation started an experimental Child Welfare Scheme, with the chief object of displacing the unqualified barber women with trained mid-wives. The

MADRAS CORPORATION

Statement Showing the Particulars of Hospitals owned by Corporation and Strength of Staffs Concerned.

	31st December 1947						31st December 1951					
	Management			Strength			Management			Strength		
	Govt	Corp	Priv	Beds	Doct	Nurses	Govt	Corp	Priv	Beds	Doct	Nurses
1. Hospitals	7	2	1	2703	...	...	8	2	1	2,944	...	...
2. Dispensaries	2	19	...	4	...	...	1	19	...	4	...	...
3. Opthalmic Hospital	1	...	...	170	...	...	1	...	...	170	...	...
4. Tuberculosis Institute	1	...	...	...	...	...	1	...	...	...	...	...
5. Mental Hospital	1	...	...	888	...	...	1	...	...	888	...	...
6. Infectious Diseases Hospital	...	1	...	104	..	...	...	1	...	152	...	...
7. Women and Children Hospital	3	...	1	925	...	...	3	...	1	968	...	...
8. V. D. Clinic	...	1	...	...	...	...	...	1	...	...	...	...
9. T. B. Clinic	...	...	...	...	...	...	...	1	...	...	...	...
10. Leprosy Clinic	...	...	...	...	...	...	...	2	...	...	...	...

MADRAS CORPORATION

Statement Showing the Particulars of Hospitals owned by Corporation and Strength of Staffs Concerned.

31st December 1956						31st December 1960					
Management			Strength			Management			Strength		
Govt	Corp	Priv	Beds	Doct	Nurses	Govt	Corp	Priv	Beds	Doct	Nurses
8	2	2	3,702	...	...	10	1	1	4,111	...	...
2	31	...	4	...	...	4	42	...	4	...	...
1	...	...	302	...	...	1	...	...	326	...	...
1	...	...	...	...	...	1	...	...	...	...	...
1	...	...	888	...	...	1	...	...	1,800	...	...
...	1	...	232	...	...	...	1	...	264	...	...
3	...	2	1,327	...	...	3	...	2	1,502	...	...
...	1	...	...	...	...	...	1	...	...	...	...
...	1	...	...	...	...	...	1	...	...	...	...
...	3	...	...	...	...	...	2	...	...	...	...

beginning made by the Corporation was praiseworthy. In a very short time the scheme proved such a success and gained so much popularity that the Corporation went a further step and planned to extend it on systematic lines. To-day there are 44 Child Welfare centres and 19 Maternity wards in different parts of the City serving the needs of the poor and lower-middle classes. In 1950 maternal mortality rate was at a very low figure of 2.09 per mile and the infant mortality was at a comparatively high figure of 166.5 per mile. Comparing these figres with the figures available for 1960, we find that the maternal and infant mortality rates have fallen to 0.89 and 95.10 per mile respectively.

The establishment of 'Ashok Vihar', a health and recreation centre, with a maternity section attached to it, in the heart of the City is a milestone in the Public Health amenities provided by the Corporation. It is said to be the first of its kind in India modelled on the Peckham Health Centre in London. It was opened on 29-5-1948.

Family Planning:

The Government and the Corporation realise the urgency and even immediacy of Family Planning. The pilot scheme which was started in the year 1957 on an experimental basis was extended through out the city during the year 1960-61. The total number of Father Information Centers maintained during the year was 32 and Mother Information Centres 43. At the above centres, 15,066 fathers and 49,588 mothers were given necessary instruction and advice.

Education:

Till the year 1910, the Corporation was giving grants to the elementary schools run by private management. It was then decided to construct 40 model elementary schools within 10 years at the rate of four schools per year. By 1921, the Corporation constructed 26 schools and maintained four other schools in rented buildings. In 1921, a beginning was made in the matter of opening elementary schools exclusively for girls. The year 1924 is an important land mark in the history of elementary education in the City, for it was in that year that the Corporation took up compulsory eduction in divisions 24 to 26 as an experimental measure. In 1925, it was resolved to levy an education cess of ½% of the annual valuation of property and to contribute annually a sum of Rs. 2.4 lakhs to the Elementary Education. The Government approved the principles of compulsory education for boys and girls except non-muslim girls in Divisions 24 to 27 during 1925-26. In 1926, the Government sanctioned the introduction of compulsion in divisions 28 to 30. The success of these experimental measures was so phenomenal that the Corporation extended the scheme to all the other parts of the city. Within three years compulsory education was enforced in all parts of the city.

Before the introduction of compulsory education, the Corporation had under its management 53 elementary schools. Now it has 301 elementary schools. When the scheme of compulsory elementary education was introduced in 1926, there were only 48, 115 school-age children in the city of Madras. The total number of elementary schools in the city now is 545 and the strength of the school-age children is 2,11,846. Statistics show that the percentage of school-age children in schools to the total number was 95.64% in 1960-61 as against 37.6% in 1926. The Corporation schools had on their rolls 123633 children during the year 1660-61. Facilities such as supply of mid-day meals, books, slates for the poor and deserving children and toilet articles such as soaps, combs and towels especially in schools in slum areas have greatly contributed in attracting a large number of poor children and keeping them on rolls in the Corporation schools.

The Madras Government has justly became famous in being the pioneer to introduce throughout the length and breadth of the State, a scheme for the free supply of mid-day meals to poor children through voluntary donations. The Corporation has been doing its bit in this direction. There are as many as 548 slums in the city and the special survey has shown that children of the slum dwellers attend schools. The supply of mid-day meals is a boon to these poor children and a bait to the poor parents to send their children to school. The number of poor and deserving children so fed in Corporation schools was 33,895 in 1960-61.

There are 9 basic schools with a strength of 3,337 children on the rolls. There are four nursery sections to the Corporation schools with a

strength of 252 children on rolls functioning for the benefits of pre-school age children. The Corporation maintains 37 play-grounds in various parts of the City.

Besides spreading Elementary Education, the Corporation is also imparting Secondary Education through three High Schools, viz., two high schools for boys at Saidapet and Nungambakkam and a High school for Girls at Nungambakkam with 1,250, 1,381 boys and 612 girls respectively on their rolls. (1960-61)

The problem of providing adequate accommodation for locating the Corporation schools with playgrounds and amenities continues to pose a difficulty. Out of 301 Corporation schools in the city, 135 are still housed in rented buildings, 161 are run in the Corporation buildings and 5 school buildings are owned by the Government. Shifts system was adopted in 21 schools during 1960-61 to cope with abnormal ranks of pupils in the schools and also to make up the shortage in accommodation.

The total number of teachers employed in the Corporation during the year 1960-61 was 3,499. There were 106 cub-packs, 26 Scout Troops, 58 Bulbul Flocks and 19 Guide Companies. The strength of the whole Scout movement with officers was 7,236.

A sum of Rs. 61 lakhs has been spent during 1961-62 by the Corporation on Elementary Education and on the supply of mid-day meals, maintenance of Reading Rooms, High schools, Play-grounds etc. as against an expenditure of Rs. 5,500/- in the year 1911-1912.

It has been observed by Mr. E. S. Griffith that "If anyone function is to be singled out as furnishing the best index of vitality and vision of the City Government it is education. A local self-governing unit possessed of foresight will put its own education at the centre of the municipal effort". Judged by this, Madras Corporation can well claim a prominent place among the Municipal bodies in India. But the Achilles' heel about the Corporation schools is that unlike most of the privately managed schools, the standard of education is not of a high order. The day-to-day management of the schools leaves much to be desired. So much so parents who could afford it send their children to schools other than those run by the Corporation. The poor and those who fail to secure admission in other schools admit their children in Corporation Schools. This leads to some extent segregation of poor children which is not a healthy feature.

A statement showing the particulars regarding the educational facilities provided by the Corporation is appended.

MADRAS CITY

Statement Showing the Particulars of Corporation Schools

Year	No. of Elementary and Higher Elementary Schools	No. of Teachers employed in Elementary Schools	Basic Schools	No. of Nursery Schools	No. of Incomplete and Feeder Schools	No. of High-Schools	Strength in Elementary Schools		Total
							Boys	Girls	
1951	184	2,284	...	4	49	2	40,595	30,038	71,633
1956	213	2,730	14	4	53	2	49,333	42,293	91,626
1960	261	3,499	9	4	31	3	66,629	57,004	1,23,633

Lighting:

The streets in the City of Madras were lit with oil till the year 1910, when electric lights were first introduced. At the beginning of 1909-10, there were 6,269 oil lights and 15 electric lights in the city. The use of electricity for street lighting began in a small way in 1910. By 1924-25 all the oil lights were completely replaced by electric lights. The streets of Madras are now lit with 22,677 electric lights with a total of 1,350.030 k.w. of which about 600 are mercury discharge lamps. In addition, 249 oil lamps are in use in the extended areas of Saidapet and Aminjikarai where electricity is being introduced gradually.

The Madras Corporation has a total length of 895.394 miles of lighting mains in the City, out of which 815.136 low tension cables, 29.510 miles are Low Tension Overhead mains and 50.748 miles are H. T. cables.

The introduction of electric lights in the extended areas of Saidapet, Sembakkam and Aminjikkarai has been going on since 1946. The progress has been rather slow on account of the shortage of materials and paucity of funds for such schemes. With the introduction of the fluorescent lights in the lighting field, some of the mainroads are being taken up for conversion to this type of lighting. During 1960-61 206 existing Mercury discharge lamp stands were changed over to fluorescent tube light fittings in certain most important thoroughfares. This lighting has proved effective. Still we have to go a long way, if we are to attain the standard of lighting obtained in London.

The Madras Electricity Board undertakes the production and distribution of electric energy; and the Corporation buys electricity for lighting.

Water Supply:

Madras City is situated in a region which is subject to periods of drought. There are few effective rivers and equally few natural springs. Water is in constant demand for irrigation in the outlying areas. The abnormally flat nature of the surrounding country limits very strictly the possibility of finding a natural fall of sufficient height to provide adequate pressure in the water mains. Until about seventy years ago, Madras City depended for its water supply upon shallow wells. These wells were in constant danger of pollution owing to the porous nature of the sub-soil and the want of proper drainage. In 1866, a proposal to dam the Kortalayar River, about 17 miles north-west of Madras was adopted. This river takes its origin in the Nagari Hills on the Eastern Ghats about 150 miles North-west of Madras. A masonry weir six feet high was built across the Kortalayar River at Tamarapakkam to divert the flood water and lead it through the Upper Supply Channel to the Cholavaram lake and from thence through the Lower Supply Channel to the Red Hills lake from which the City supply is drawn. Both these lakes also receive a considerable supply from their own catchment areas spread over 140 square miles. The works were completed in 1870 and their maintenance is in the hands of the Government Public Works Department. In addition to providing water supply for the city, these lakes are drawn upon for irrigation purposes.

The Water supply to the Madras City is drawn directly from the Red Hills lake through an in-take tower known as the 'Jones Tower' located at the deepest point in the lake. The water drawn through the in-take tower passes through a tunnel and enters a screening chamber and roughing Filters at Red Hills where grosser impurities are eliminated by passing the water through a porous bund of broken stones. The water then flow by gravity through a masonry arched under-ground conduit seven miles long and enters the Kilpauk Water Works where it is filtered, chlorinated and pumped into the City Distribution System. The Filteration is mainly by means of Slow Sand Filters with a few Rapid Gravity (Mechanical) Filters. The latter are subsequent additions.

All these works were constructed by the Corporation and are maintained by it. The Corporation has to pay the Government for all water drawn from the Red Hills lake for City supply at Rs. 1/- per 1000 cubic yards, subject to a maximum payment of Rs. 55,000/- per annum the quantity of water being measured by a weir recording apparatus installed at the Roughin Filters.

To meet the increased demand for water for the growing needs of the City, it was decided, in 1940 to construct a dam across the Kortalayar river and form a reservoir at Poondi, 12 miles up-stream from Tamarapakkam anicut. This reservoir is for impounding the greater flood discharge which normally surplussed over the Tamarapakam

and Vallur anicuts and wasted into the sea. The reservoir is designed to impound 2,500 m c.ft. of water (the full reservoir level being 137 ft.) and will have a water spread of nearly 12½ square miles. Its storage capacity will be nearly equal to the combined storage capacity of the Cholavaram and Red Hills lakes.

The water impounded in the Poondi reservoir is drawn into the Red Hills lake through the Kortalayar river upto Tamarapakkam anicut and from there through the Upper and Lower supply Channels to Cholavaram and Red Hills lakes. The reservoir was re-named "Satyamurthi Sagar" after one of the distinguished Mayors, late Sri Satyamurthi, in the year 1948. The maintenance of the reservoir is in the hands of the Public Works Department, the cost thereof being shared between the Corporation and Public Works Department in the ratio 2:1.

Allowing for losses due to evaporation, percolation and transmission and for the quantity diverted for irrigation, the net quantity left for city's water supply is only about 2000 million cubic feet. Even this could be assured only in years of normal rainfall. With the available supply, the Corporation is able to make a daily supply to the city of 30 to 40 million gallons, taking the per capita supply to about 18 gallons including those made for industries. The daily availability of water of 18 gallons per head is very inadequate by modern standards of sanitation. The supply is poor compared to that made in other metropolitan cities in India, where a minimum of 40 gallons per head per day is assured for a healthy living. Even so, many parts of the city like Tondiarpet, George Town, Triplicane, Mylapore and Thiyagaraya Nagar, at the tail ends of the distribution system have less than the meagre supply and the citizens of these areas are obliged to adopt various methods like "pit taps" below the ground level which often lead to contamination. The expansion of the city limits in 1946 by an additional 20 square miles had further aggravated the problem. Of the areas newly added to the city limits in April 1946, Sembiam and Saidapet areas have protected water supply system of their own from Infiltration Galleries. Red Hills water supply has been extended to certain areas in Aiyanavaram, Aminjikkarai, Kodambakkam and Adyar. In some of the on-lying areas, where it was difficult to extend the water supply, water is being supplied in mobile tanks mounted on lorries. The Municipal councilor, representing Aiyanavaram, and extended area, very recently went to the extent of issuing a notice to the Corporation threatening that he would break the water main, if immediate steps were not taken to ensure adequate supply of water to his division before a definite date.

It will be of interest to know to what extent the water need of the city has increased through years. The total quantity of water supplied to the city during the year 1946-47 was 8,739 million gallons which is equivalent to 30.79 gallons per head per day for a population of 7,77,481 as per the Census of 1941. The average daily supply to the city during that year was about 24 million gallons. The quantity of Red Hills water pumped and supplied to the City during the year 1960-61 was, 11,605 million gallons which works out to an average of 31.8 million gallons per day. The average quantity of water supplied during the year 1960-61 to Saidapet and Sembiam from the Infiltration galleries was 1,59,045 gallons per day.

A word about the quality of the water supplied. In summer, the quality of the water, admits the Water Analyst of the Madras Corporation, is far from satisfactory. Complaints pour in of the discoloration of water, smell of sulphuretted hydrogen and the presence of blood worms and bacteria. The Water Analyst concedes that the presence of blood worms is, no doubt, undesirable in potable water but consoles himself saying that if the public are only aware of the phenomena responsible for such defects and the limitations of the particular plant available with the Corporation and the condition of the distribution system they may perhaps become less critical.

The measures adopted for controlling the blood worms and eliminating the bad smell are applied at two stages. At the purification stage, the under-layers of the filters are sterilised with heavy dose of chlorine before commissioning the beds, to destroy the worms and the eggs. At the distribution system, the mains are periodically scoured to remove the slush and the organic accumulations along with the blood worms. This measure sometimes proves to be unsuccessful, as small pockets are left which act as centres of infection. In such cases, the mains are sterilised

MADRAS CORPORATION

Details of Quantity of Water Supplied During the Year 1960-61

Total Quantity Gallons: 11605 M. Gallons

	QUANTITY In M. Gls.	PERCENTAGE
METERED		
1. Textile Mills	319.759	2.76
2. Port Trust & Shipping	83.882	0.73
3. Railways	296.836	2.57
4. Industries including M. E. S.	121.159	1.05
5. Gardens, Bangalows	255.751	2.22
6. Hotels	138.168	1.20
7. Hospitals	162.881	1.41
8. Building Construction	12.490	0.11
Cattle Yards	0.635	0.01
Miscellaneous	320.620	2.72
9. Domestic	367.954	3.18
ESTIMATED		
10. Hotels	9.075	0.09
Cattle Yard	6.723	0.06
Building Construction	0.949	0.01
Laundries	0.980	0.01
Miscellaneous (Bakery, Saloon, etc.)	6.955	0.07
Fire Calls (209)	9.900	0.09
For Road Forming and Superior Road Making	10.125	0 02
11. Miscellaneous such as Public Convenience, Park, Cattle Yard, Depots etc.	370.025	3.19
12. Domestic	9110.329	78.50
Total	11605.196	100.00

by injecting heavy dose of chlorine into the section of mains with the aid of Bells injector type chloronomes. The section of main thus treated is scoured after a few hours. This treatment is said to bring about appreciable result. The situation would improve when the Corporation would be able to replace all existing sand filters with Rapid Mechanical Filters, which would arrest a considerable amount of the organic matter which are now escaping into the distribution system, and thereby alter the unsatisfactory conditions responsible for the prevalence of the blood worms.

The future of the City depends very much on the ability of the Corporation to double the present water supply for its growing population during the next five years. The immediate problem is how to raise the daily quota to about 30 to 40 gallons per head and also to provide for the expected increase in population during the coming decades and the whole crop of new industries that may spring up in the greater metropolitan area. Based on the earlier population trends, it is estimated that the population of the city in the year 1970, 1991 and 2011 will be 23,32 and 50 lakhs respectively. Allowing a per capita consumption of 25 to 30 gallons a day, the city's needs both for domestic and industrial purposes is likely to be of the order of 70 to 75 million gallons per day in 1970-71. Allowing 30 million gallons more for the requirements of industries coming up in and around the city, the total demand for water is expected to be of the order of 100 million gallons per day. A chart showing the quantity of water supplied for various purposes is appended. The question of finding additional sources of water has been exercising the mind of the Corporation and the State Government for quite a number of years. The public are also seized of the matter as evident from the discussions at meetings and the letters to the editors of the dailies. Long term solutions of different degrees of practicability and considerable dependance on extraneous consent have been aired. But the city's need is immediate. The State Government have done well to have taken a decision to stop the use of Red Hills and Cholavaram water for irrigating about 7,500 acres, so that the water now utilised for irrigation could be diverted to meet the increased requirements of the city. This they propose to accomplish by acquiring the ayacut lands commanded by both the lakes. The water that has to be let out for irrigation from these lakes, about 550 million cubic feet per annum, amounts to not less than a sixth of the total water now pumped into the 'City Mains' in a year. That means, an extra two month's supply, a considerable accession indeed. Another proposal receiving attention is to implement the twin scheme of constructing a pipeline or a masonry conduit from the Satyamurthi Sagar at Poondi to Red Hills lake, to eliminate losses of water during transit due to seepage and evaporation. This will raise the supply further by another 550 million cubic feet or another two month's consumption approximately at present levels. The Government have already accorded sanction for incurring an expenditure of Rs. 2.10 crores on the acquisition of the lands under the Red Hills and Cholavaram Lakes.

These short-term solutions will still leave the problem of where to get another 50 million or so gallons daily, required ten years from now to be tackled, nor do they provide the answer in a year of severe drought like that faced in 1952. Nevertheless, they will give the Government respite in working out long range plans for solving the city's water supply problem by tapping either the Cauvery or possible sources in Andhra Pradesh.

The utilisation of Krishna water for augmenting Madras city water supply had all along been under consideration and accepted in principle at every stage. The scheme could not be implemented owing to the separation of the Andhra State in 1953, but for which the scheme would have been completed by now. Even now efforts are on in this direction. A plea for the diversion of a limited quantity of water from the Krishna river to meet the dire necessity of drinking water supply for Madras city, within the public health standards has been recently made in a memorandum submitted to the Gulhati Commission on behalf of the Madras Corporation.

The most recent solution proposed is to bring water from the Cauvery delta to Madras. The Government created a special Public Works Subdivision and had the scheme investigated. The Special Sub-division has completed its labours and submitted its report to the Government. Considering the long distance, the scheme may involve prohibitive cost. Any possible objection regarding

its adverse effect on the water table and the regime of ground water in its neighbourhood in the delta region has to be met.

The State Government have also ordered the exploration of underground water resources in Madras State on a fairly wide scale. Three specific areas have been selected for this investigation through drilling operations: One is the Kortalayar basin, immediately to the north of Madras city and extending almost to the northern border of the State. The second is the Pondicherry-Cuddalore-Neyveli belt which is well known for its artesian springs. The third is the Pudukkottah-Sivanganga region. Geologists are optimistic of the outcome of the investigations and seem to think that these underground sources may meet all the requirements of the city, of its citizens as well as of its industries.

The Corporation had also initiated talks with officials of the U. S. consulate to explore the possibility of converting sea water into drinking water to augment the city's water supply. Desalting is likely to involve heavy cost and it is doubtful whether the Corporation finances would admit of such a costly venture. It is too soon to hazard a guess about the practicability of the scheme. Who knows that this scheme which may not look feasible just now may turn out to be cheap and practicable with the perfection of techniques in the years to come?

The augmentation of Water supply from extraneous sources like the Cauvery, the Krishna, Kortalayar and Palar Basins or the Neyveli acquifers is quite necessary but the public will not derive the full benefit of it unless and until the distribution system is put on a more even keel. The foremost thing is to standardise the pressure at the Kilpauk Pumping Station, so as to maintain uniform supply at the tail ends of the distribution system. The matter is not so simple as it appears to be; for the mains laid in 1870 have become rusty and may not withstand high pressure. Nevertheless during festive occasions, the Corporation puts high pressure for brief spells. There might be oxidation of the pipes due to hydrogen sulphide gas generated through biochemical action. There might also be algal growth inside. These factors will diminish the flow of water. It is, therefore, imperative that the distrubution system is thoroughly over-hauled and the pipes cleaned, renovated or replaced whenever necessary.

Cities like Bombay, Calcutta and Delhi are dependent on perennial sources for their water supply. Unfortunately, Madras does not have the benefit of nature by way of an assured supply, however, small. With the process of urbanisation, increasing population and increasing housing schemes, the responsibility of safeguarding the health of its citizens devolves more and more on the Corporation. Left to itself, the Corporation may not find adequate resources to undertake schemes of a giant type. In their political ideologies, the Municipal majority party (at present the Dravida Munnetra Kazhagam) and the State ruling party (the Congress) can be as separate as the fingers, still they can be one as the hand in all matters that go to breathe fresh air into the lives of thousands of men and women whose abode the City is.

The other minor amenities that have been provided by the Corporation can now be alluded to.

1. Acquarium
2. Parks and Play grounds
3. Public Markets
4. Slaughter Houses
5. Cattle Yards
6. Dhobi Khanas
7. Poor House
8. Special Home (for the segragation of thedisabled and diseased poor)
9. Home for the homeless
10. Work Home for physically abled beggars.
11. Orphanage
12. Lethal chamber for disposal of stray dogs.
13. Burial and Burning grounds.

APPENDIX

BIBLIOGRAPHY

1. The Madras Tercentinary Commemoration volume - Published on the 4th August 1939 for the Madras Tercentinary Celebration Committee.

2. History of the City of Madras written for the Tercentinary Committee 1939 by Rao Sahib C. S. Srinivasachariar, Prof. of History, Annamalai University.

3. Vestiges of old Madras by Henry Daridson Love.

4. The Official Hand book of the Corporation of Madras 1950.

5. An article written by Sri K. Narasimhachariar in Hindu dated 29th September 1961.

6. Administration Report of the Madras Corporation 1960-61.

7. Corporation Code Book - Volume I

8. Introduction to the Madras City Municipal (Amendment) Bill 1961.

9. The Madras City Municipal (Amendment) Act 1961 (Act 56 of 1961).

10. The Madras Corporation Chronicles 1960-61.

11. The Hindu.

12. Statistics Collected from the Corporation of Madras

13. Statistics collected from the Corporations of Bombay and Calcutta.